JANUARY
1961
•
35¢

AMERICAN Cinematographer

The Magazine of Motion Picture Photography

SPECIAL

Cinematographic

TECHNIQUES

ISSUE

ALSO
- The Experimental Film
- Filming "Spartacus" in Super-Technirama

Carolyn Craig in a scene from the rain sequence in the Longridge Enterprises production, "Studs Lonigan," produced by Phil Yordan, to be released by United Artists

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says J. Arthur Feindel, A.S.C., Director of Photography on the production of James T. Farrell's classic best seller, "Studs Lonigan." "Camera work on today's features is more than mere picture taking," explains Feindel, shown on the right in the photo with Director Irving Lerner setting up the rain sequence. "That's why, in filming 'Studs Lonigan,' I was glad to rely on Du Pont products and the service that goes with them. Thanks to Du Pont, I felt free to concentrate on the demands of the drama itself."

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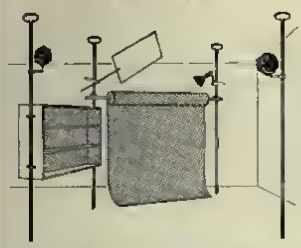

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AMERICAN

Cinematographer

ARTHUR E. GAVIN, Editor

MARION HUTCHINS, Editorial Assistant

CONTRIBUTORS: Herb A. Lightman, Joseph V. Moscelli, Clifford V. Harrington, Joseph Henry, Frederick Foster, Libero Grondi (Rome), Jean Belanger (Paris), Derek Hill (London)

Technical Adviser: Dr. Horwood L. Simmons

Editorial and Business Office: 1782 North Orange Drive, Hollywood 28, Calif.
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AMERICAN SOCIETY OF CINEMATOGRAPHERS

FOUNDED January 8, 1919, the ASC was established to advance the art and the science of cinematography, to encourage, foster, and strive for preeminence, excellence, artistic perfection and scientific knowledge in all matters pertaining to cinematography, to bring into closest confederation those leaders in the cinematographic science whose achievements in that field entitle them to membership in the Society, and to promote the interests of all who shall be called to membership in the ASC, that such membership may become a mark of honor and distinction based on merit.

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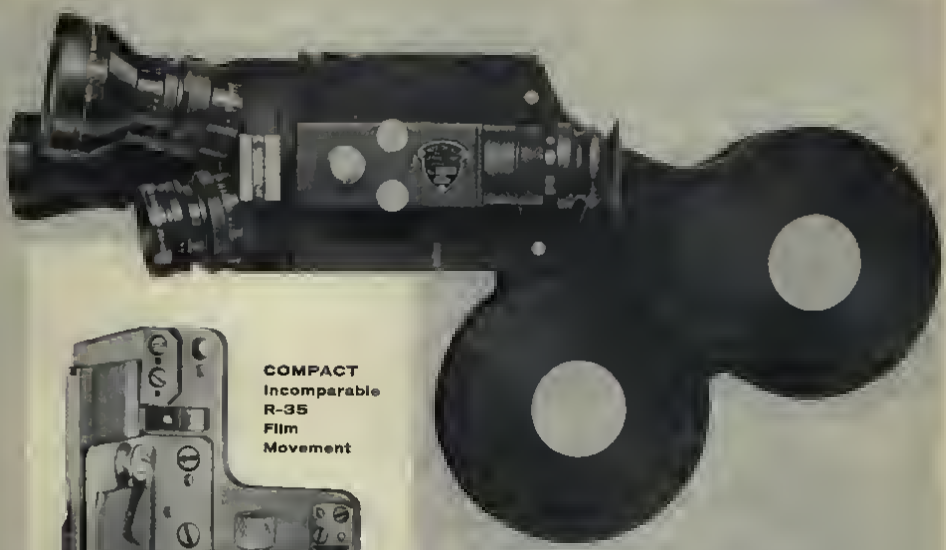

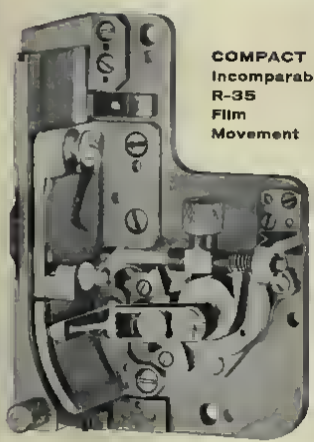

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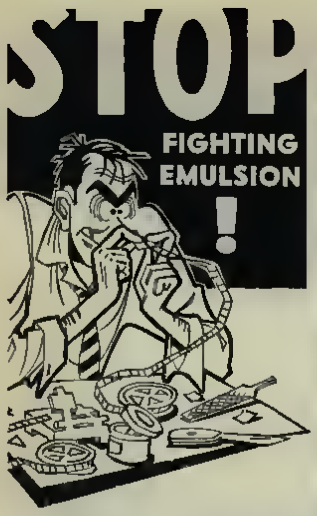

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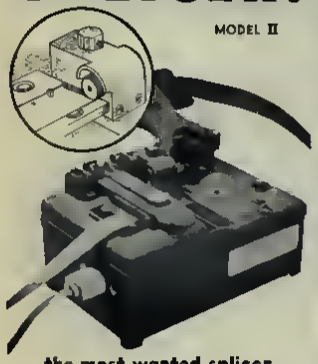

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INDUSTRY NEWS

News briefs of industry activities, products and progress

Film and TV Museum Approved

An important step in the realization of the motion picture and TV museum planned for Hollywood was taken last month when the Los Angeles County Board of Supervisors, by a 4-to-1 vote, authorized appropriation of $162,500 in architect's fees and ordered the county counsel to prepare enabling legislation which, if approved, would get the project underway.

At a meeting of the Board earlier in the month, the project was shelved temporarily because the Supervisors felt the motion picture industry should

LEE GARMES, ASC
sems idass about the Hollywood Motion Picture and TV Musaum

put up half the estimated $4,000,000 cost of the Museum. Present at the meeting were many industry notables, including Mary Pickford, who asked, "How can we raise two million dollars in two weeks?" and added, "I feel our industry shouldn't be put in such a position."

According to present plans, the museum, owned and operated by a non-profit corporation initially, would revert to County ownership in 30 years.

Lee Garmes, President of the American Society of Cinematographers, who

ARTHUR MILLER, ASC
appointed to Advisory Council of the Hollywood Motion Picture and Television Museum

was among those present at the earlier meeting, said privately he believed that the Museum might successfully be owned and operated by the industry, even constructed with the financial assistance of industry crafts or through donations made by the nations' theatre owners on the basis of one-cent of every paid theatre admission.

Earlier, Arthur Miller, a former President of the ASC, was appointed to the Advisory Council of the Hollywood Motion Picture and Television Museum by Sol Lesser. Chairman of the Museum Commission. He was unable to attend the December 13th meeting with the Supervisors because of an out-of-town speaking committment.

* * *

Award To Karl Struss

Karl Struss, ASC, was among those cited for outstanding achievement in the production of TV film commercials at the recent First Annual TV Commercial Festival and Forum in New York. Certificate of Merit presented Struss was for his work in photographing the "Family Shopping Tour" commercial for Chevrolet Motors.

* * *

Blackburn Exits German Co.

Terminating active management during the past 35 years of W. J. German, Inc., of California, Edward O. Blackburn steps down from the office of Vice-President and General

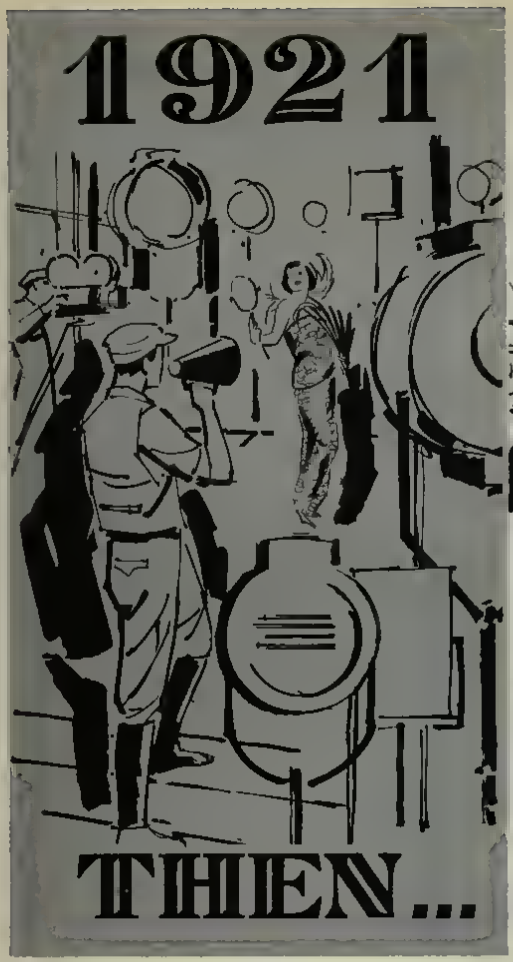
EDW. O. BLACKBURN
steps down from helm of W. J. German, Inc., in Hollywood.

Manager of the firm's California organization January 6th.

Through arrangements reached between Blackburn and his Company, he will continue in a sales advisory capacity through 1961 and 1962, although he will officially leave his office this month.

William J. German, company president, is expected to appoint a successor to Blackburn following his arrival in Hollywood early this month.

Continued On Page 8



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INDUSTRY NEWS

Continued From Page 6

Arthur Miller Addresses SMPTE

Arthur Miller, ASC, last month addressed the Northern California Section of the Society of Motion Picture and Television Engineers in San Francisco on "The Historical Aspects of Motion Picture Photography." Miller, who photographed the bulk of "The Perils of Pauline" serials, illustrated examples of early day cinematographic techniques with old-time silent films which were screened as part of his presentation.

* * *

Surtees' "Ben-Hur" Cited

The country's press motion picture critics and reviewers, and broadcasting's film commentators voting in *The Film Daily's* annual Filmdom's Famous Fives poll put "Ben Hur" at the top of the list of its Five Best Photographed Pictures for 1960. "Ben-Hur" was photographed by Robert Surtees, ASC, and won the Academy Award last year for Best Achievement in Color Cinematography.

ROBERT SURTEES, ASC ... another award for his "Ben-Hur" filming

Other films cited for Best Photography were "Jungle Cat," By James R. Simon, Hugh A. Wilmar, and Lloyd Beebe; "Sons & Lovers," by Freddie Francis; "Elmer Gantry," by John Alton; and "Suddenly Last Summer," by Jack Hildyard.

* * *

Oscar Awards in April

The 33rd Annual Academy Awards presentation ceremonies will take place April 17th at the Santa Monica Civic Auditorium. The event will be televised and radiocast through facilities of the American Broadcasting Company. Switch from the traditional Hollywood Pantages Theatre to Santa Monica's Civic Auditorium was necessitated by fact the Pantages was recently refurbished and a great many of its seats removed in coverting the theatre for exhibition of ultra-widescreen 70mm movies.

The Academy has appointed Steve Broidy Chairman of the Awards Program. The following members of the American Society of Cinematographers are serving on the Cinematography Awards Rules Committee: Charles G. Clarke, Chairman; Farciot Edouart, George J. Folsey, Winton C. Hoch, Arthur C. Miller, and Hal Mohr.

Cinematographers serving on the Special Effects Awards Rules Committee are: Farciot Edouart, Linwood G. Dunn, Paul Eagler, John Fulton, Ub Iwerks, and Hans Koenekamp.

* * *

Workshop Dates Announced

The Annual Calvin Workshop, conducted by Calvin Productions, Inc., Kansas City, Mo., will take place on the company's sound stages February 13, 14, and 15, 1961. Any serious film worker is invited to attend and there is no cost or obligation other than providing his own accommodations and meals.

For those who require a personal invitation on the Calvin company's letterhead, write to the company at 1105 Truman Road Kansas City 6, Mo.

* * *

Industry Jobs at Peak

Employment level for studio craftsmen in Hollywood was at the highest level in 10 years early in December, with all unions reporting close to 100% employment of members, according to the industry trade-paper *Hollywood Reporter*. On December 8, 22 features and 114 TV films were before the cameras in Hollywood studios. ■

33rd Annual Academy Awards VOTING TIMETABLE

Dec 31 (Midnight)	AWARDS YEAR ENDS
Feb 2 (Polls close Feb 14)	MAIL NOMINATIONS BALLOTS (Acting, Directing, Writing and Best Picture Awards)
Feb 13 (Polls close Feb 21)	MAIL NOMINATIONS BALLOTS (Art Direction, Cinematography, Costume Design, Film Editing and Music Awards)
Feb 27	ALL NOMINATIONS ANNOUNCED
Mar 4 thru Mar 23	NOMINATIONS SCREENINGS IN ACADEMY AWARD THEATRE
Mar 17	MAIL FINAL BALLOTS
April 3	FINAL POLLS CLOSE
April 17	AWARDS PRESENTATION

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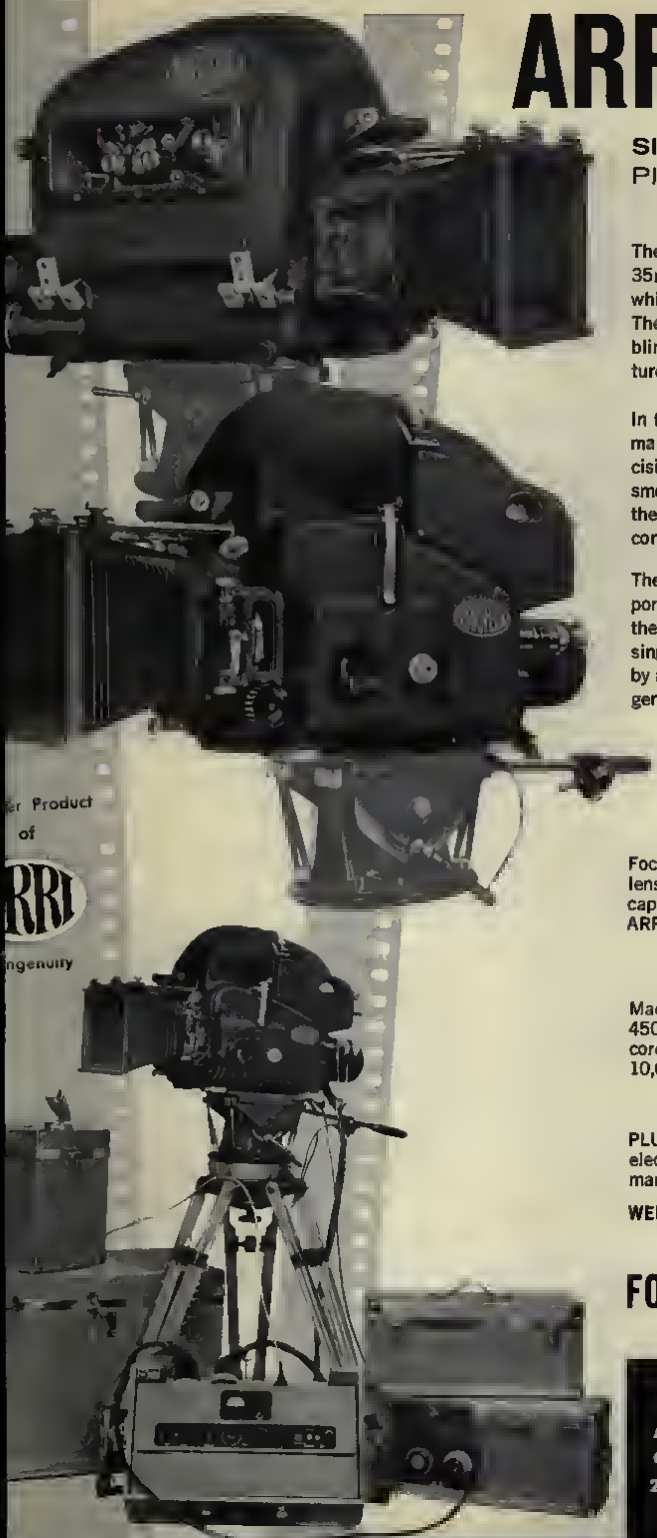

The Arricord 35 is a combination of the latest Arriflex 35mm Model IIB camera and a magnetic recording unit which uses perforated 17½mm magnetic recording film. The combined units are housed in a compact sound blimp having external controls for both sound and picture recording.

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The Arricord answers the demand for a compact and portable double system sound recording camera with the convenience, money and labor saving features of a single system camera. Because the entire unit is driven by a 24 Volt battery pack it eliminates the need for AC generators or inverters.

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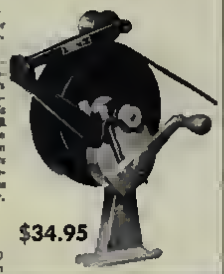

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A.S.C. Begins 42nd Year

Cinematographers' society, oldest craft organization in the industry, founded January 8, 1919.

VIEW OF LOUNGE of Hollywood clubhouse of American Society of Cinematographers, which the Society has occupied since December, 1936. Situated on the corner of North Orange Drive and Franklin Avenue it previously was the home of silent-film star Conway Tearle. Here Hollywood's top cinematographic talent gathers once a month for dinner and informal discussions.

SOLEMNLY, AND WITHOUT fanfare, the American Society of Cinematographers will observe its 42nd Anniversary on January 8th The Society is the oldest craft organization in the motion picture industry, and its official establishment began when on January 8, 1919, the Society's articles of incorporation were approved by the State of California.

The Society's founding fathers and charter members were fifteen of Hollywood's leading motion picture cameramen: Philip E Rosen, Homer A. Scott. William C. Foster, L. D. Clawson. Eugene Gaudio, Walter L. Griffin, Roy Klafki, Charles Rosher, Victor Milner. Joseph August, Arthur Edeson, Fred L Granville, J. D. Jennings, Robert S Newhard, and L. Guy Wilky. Of these, only Klafki, Rosher, Milner, Edeson and Wilky are alive today. All are retired.

Although January 8, 1919 marks the official beginning of the A.S.C., the movement for a society of cameramen actually began much earlier in New York, where America's motion picture industry also had its beginning.

The formation of the first motion picture cameramen's club in America took place in the Bronx during the summer of 1913 Philip Rosen and a number of other cameramen who then were working at the Edison studio for $18.00 a week started the ball rolling. At the time a group of producers known as the Motion Picture Patents Company practically controlled the industry, making it impossible for a cameraman to seek safe employment with independent concerns. So anonymous notices were sent out to as many cameramen as it was possible to reach. summoning them to an organizational meeting.

On the appointed evening, thirteen men appeared, each a stranger to the others, and with no definite idea as to why they were present A temporary chairman was appointed and the motion picture cameramen's first organization, the Cinema Camera Club, was formed.

Shortly thereafter, a similar organization was formed in Hollywood and known as the Static Club Like the Cinema Camera Club, the Static Club was formed for purely social reasons —to afford cameramen opportunity to exchange ideas. reveal job opportunities, and for the general advancement of the motion picture cameraman and his work

Later on, the Static Club changed its title to the Cinema Camera Club and an affiliation was formed with the New York group with an exchange of membership

In 1918, the Hollywood group began to deteriorate as an organization and

Continued on Page 58

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WALTER STRENGE'S

QUESTIONS & ANSWERS

Need advice on a picture making problem? Your questions are invited and will be answered by mail. Questions and answers considered of general interest will appear in this column each month.

Q In shooting a number of scenes recently with my new 16mm single-system sound camera, I encountered a great deal of unwanted background noise, such as that from automobiles passing in the distance, etc. Can you suggest how this can be avoided—or at least minimized?—*A. A. H., Denver.*

Answer: This is something that one learns to cope with through experience and trial-and-error. When shooting exteriors as you describe, sound interference from off-scene sources can be minimized by operating with the microphone placed as close as possible to the subject without intruding in the picture.

For example, if you would normally place the mike 6 ft from the player in the scene, reducing the distance to 3 ft will result in decreasing the amount of off-scene noise pickup by 6 decibels relative to the voice. Move it even closer — say a foot-and-a-half — and the noise is decreased another 6 decibels for a total of 12. Use of a directional microphone can also help, but not as much as the remedy suggested above.

Q I have seen the term "First trial composite print" in the literature and would like an explanation of the term and a description of the type of print referred to.—*J. McD., Portland, Ore.*

Answer: The first trial composite print is the first composite print made from the picture and sound release negatives for the customer by the laboratory for the purpose of checking and correcting picture and sound quality, negative cutting and assembly, etc.

Q Because it is readily available to us, we plan to use a 35mm film sound recorder to record the track for a forthcoming film to be shot and released in 16mm. What method would you recommend for transferring the 35mm sound track to 16mm—reduction or contact?—*J. B. H., Omaha, Neb.*

Answer: Leading film laboratories, such as General in Hollywood and Kansas City, recommend that the sound for a 16mm reduction print be contact-printed rather than reduction-printed. This is because most 35mm sound negatives normally are recorded for a frequency response range to at least 8000 cycles and a volume range of as much as 40 decibels, with 35mm reduction equipment in mind.

On the other hand, 16mm sound negatives are recorded with 16mm equipment and film speeds in mind. A 16mm sound system is usually capable of reproducing a volume range of 20 decibels and frequencies of not more than 6000 cycles. Negatives recorded for 16mm reproduction normally incorporate compression to a volume range of 20 decibels or less and emphasis of the low and high frequencies.

Even though excellent optical reduction prints can be made, optimum results are obtained by recording a separate sound negative for 16mm reproduction.

Q My future work in cinematography will, for the most part, be with color film and involve subjects where good color quality will be vitally important. I have no experience as yet with color temperature meters. Please explain their function and importance in color photography.—*A. M. A., Miami Beach, Fla.*

Answer: A color temperature meter measures the color temperature of light sources used in motion picture photography. Its function is based on the principle that the spectral energy distribution of light sources at different temperatures can be defined reasonably accurate by stating the relative proportions of red and blue radiation which they emit.

This the color temperature meter does. Most meters of this sort operate by rotating a circular half-red, half-blue filter before a photocell. Where the blue content of the light is greater or less than the red, the meter will so indicate on its scale. Such readings are generally indicated in terms of Kelvin degrees (or "degrees Kelvin", as some prefer to term it), although some meters indicate what filters to use to obtain normal photographic result with a given color film.

Popular color temperature meters presently in use are Gossen Sixti-color, Rehikoff, and the Spectra 3-Color. ■

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PHOTOGRAPHIC ASSIGNMENTS

WHAT THE INDUSTRY'S CAMERAMEN WERE SHOOTING LAST MONTH

By MARION HUTCHINS

NOTE Asterisks indicate television film productions

ALLIED ARTISTS

CARL GUTHRIE, ASC, "The Big Bankroll" (Bischof-Diamond Prod.) with David Janssen and Mickey Rooney Joe Newman, director.

ROBERT KRASKER, "El Cid" (Samuel Bronton Prods., shooting in Spain) with Charlton Heston and Sophia Loren Anthony Mann director

ERNEST HALLER, ASC, "Armored Command" (shooting in Germany) with Howard Keel and Tina Louise. Byron Haskin, director

AMERICAN NATIONAL

CURT FETTERS, MONROE ASKINS, "Bat Masterson"* (Ziv TV) with Gene Barry.

MONROE ASKINS, JACK MARQUETTE, RICHARD RAWLINGS, "Case of the Dangerous Robin"* (Ziv-TV) with Rick Jason

MONROE ASKINS, "Aquanaut"* (Ziv-TV) with Keith Larsen and Jeremy Slate

RICHARD RAWLINGS, "Klondike"* (Ziv-TV) with Ralph Taeger

CALIFORNIA STUDIOS

RAY FOSTER, ASC, Commercials* (Audio Visual, Inc.)

CASCADE PICTURES

WILLIAM SKALL, ASC, Commercials*

GEORGE FOLSEY, ASC, Commercials*

ROY SEAWRIGHT, Commercials*

TYLER BYARS, Commercials*

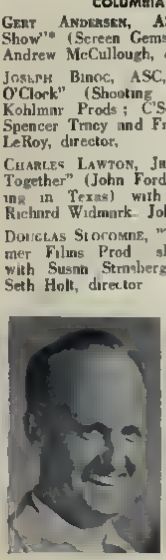
COLUMBIA STUDIOS

GERT ANDERSEN, ASC, "Donna Reed Show"* (Screen Gems) with Donna Reed Andrew McCullough, director.

JOSEPH BIROC, ASC, "The Devil at 4 O'Clock" (Shooting in Hawaii, LeRoy Kohlmar Prods; C'Scope & Color) with Spencer Tracy and Frank Sinatra. Mervyn LeRoy, director.

CHARLES LAWTON, JR., ASC, "Two Rode Together" (John Ford Prod., color, shooting in Texas) with James Stewart and Richard Widmark. John Ford, director.

DOUGLAS SLOCOMBE, "Taste of Fear" (Hammer Films Prod. shooting in England) with Susan Strasberg and Ronald Lewis Seth Holt, director



ROBERT SURTEES, ASC

Currently shooting "Mutiny On The Bounty" in Panavision and color in Tahiti for MGM

BURNETT GUFFEY, ASC, "Homicidal" (William Castle Prod.) with Glenn Corbett and Patricia Breslin William Castle, director.

FRED GATELY, ASC, "Manhunt"* (Screen Gems) with Victor Jory and Pat McVey. Fred Jackman, director.

FRED BENTLEY, "Route 66"* (Screen Gems) with Marty Milner and George Maharis.

CHARLES WELBORN, "Dennis the Menace"* (Screen Gems) with Joy North and Herbert Anderson.

PHILIP TANNURA, ASC, "Two Faces West"* (Screen Gems) with Charles Bateman and June Blair.

ROBERT BRONNER, ASC, "Gidget Goes Hawaiian (shooting in Hawaii) with James Darren and Deborah Walley. Paul Wendkos director.

WILLIAM MARGULIES, ASC

Directing the photography of "The Outlaw" TV film series at Paramount studios, Hollywood

DESILU—Cahuenga

SID HICKOX, ASC, "The Andy Griffith Show"* (Desilu Prods.) with Andy Griffith.

ROBERT DE GRASSE, ASC, "Angel"* with Annie Farge and Marshall Thompson. Lamont Johnson, director.

HENRY CRONJAGER, "One Happy Family"* (Desilu Prods.); "Jack Benny Show"* (Desilu Prods.) with Jack Benny

DESILU—Culver City

CHARLES STRAUMER, "The Untouchables"* (Desilu Prods.) with Robert Stack and Jerry Paris

LUCIEN ANDRIOT, ASC, "Guestward Ho"* (Desilu Prods.) with Joanne Dru and Mark Miller.

LOTHROP WORTH, ASC, "The Real McCoy's"* (Brennan-Westgate Prods.) with Walter Brennan.

J. PEVERELL MARLEY, ASC, "Mr. Doc"* (Pilot; Desilu Prods.).

GORDON AVIL, ASC, "Mimsi Undercover"* (Desilu Prods.).

DESILU—Gower

HAL MOHR, ASC, "Barbara Stanwyck Theatre"* (Desilu Prods.) with Barbara Stanwyck

CHARLES VAN ENGER, ASC, "Lassie"* (Jack Wrather Prods.) with June Lockhart and Jon Provost.

ROBERT PLANCK, ASC, "My Three Sons"* (Desilu Prods.) with Fred MacMurray and William Frawley.

ROBERT HAUSER, "Wyatt Earp"* (Desilu Prods.) with Hugh O'Brian.

ROBERT PITTACK, ASC, "Ann Sothern Show"* (Desilu Prods.) with Ann Sothern.

LUCIEN ANDRIOT, ASC, "Harrigan and Son"* (Desilu Prods.) with Pat O'Brien and Roger Perry.

EDWARD FITZGERALD, ASC, "Happy"* (Desilu Prods.) with Ronnie Burns.

WALT DISNEY STUDIOS

EDWARD COLMAN, ASC, "Zorro"* with Guy Williams

FOX WESTERN AVENUE

JAMES VAN TREES, ASC, "Dobie Gillis"* with Dwayne Hickman Rod Amateau, director.

GENERAL SERVICE STUDIOS

FRANK REDMAN, ASC, "Perry Mason"* (CBS-TV) with Raymond Burr and Barbara Hale

MEREDITH NICHOLSON, "Blue Angels"* (Gallu Prods.) with Don Gordon and Morgan Jones.

HAROLD LIPSTEIN, ASC, "Adventures of Ozzie and Harriet"* (Singe 5 Prods.) with the Nelson family Ozzie Nelson, director.

HARRY WOLFE, "Hennessey"* (Hennessey Prods.) with Jackie Cooper Don McGuire, director.

MAURY GERTSMAN, ASC, "Mr. Ed"* (Filmways Prods.) with Allan Young

GOLDWYN STUDIOS

NORBERT BRODINE, ASC, EUGENE POLITO, "Loretta Young Show"* (Toreto Prods.) with Loretta Young

INDEPENDENT

ALEXANDER TRAUNER, "Good-bye Again" (Argus Prod., UA release, shooting in Paris) with Ingrid Bergman and Yves Montand Anatole Litvak, producer-director

ERWIN HILLIER, "The Naked Edge" (Pennebaker Broadcasting Prod for UA, shooting in England) with Gary Cooper and Deborah Kerr. Michael Anderson, director

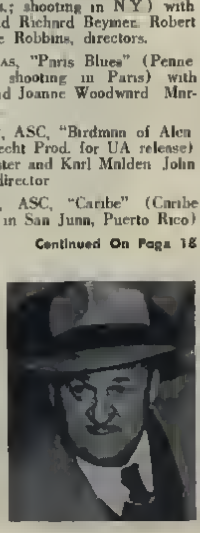
DANIEL FAPP, ASC, "West Side Story" (Panavision 70 & Color, Mirisch Picts—Seven Arts Prods.; shooting in N.Y.) with Natalie Wood and Richard Beymer. Robert Wise and Jerome Robbins, directors.

CHRISTIAN MATRAS, "Paris Blues" (Pennebaker for UA, shooting in Paris) with Paul Newman and Joanne Woodward Martin Ritt, director.

BURNETT GUFFEY, ASC, "Birdman of Alcatraz" (Harold Hecht Prod. for UA release) with Burt Lancaster and Karl Malden John Frankenheimer, director

ARTHUR ARLING, ASC, "Caribe" (Caribe Prods., shooting in San Juan, Puerto Rico)

Continued On Page 18



GEORGE RISKANT, ASC

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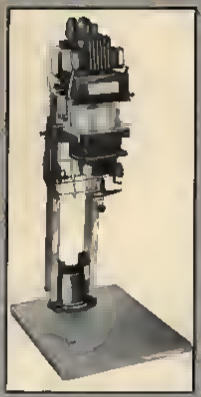

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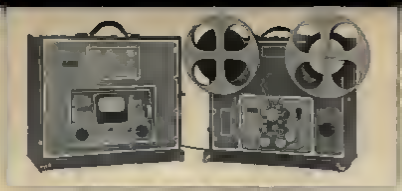

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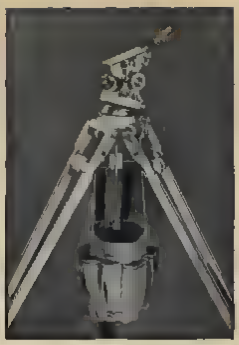

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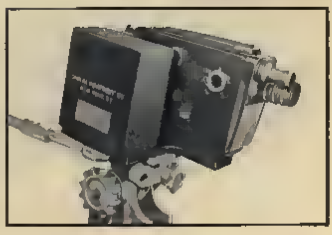

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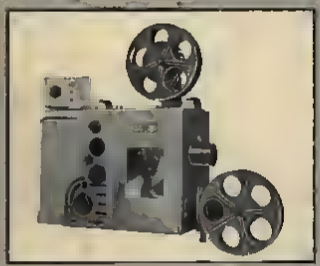

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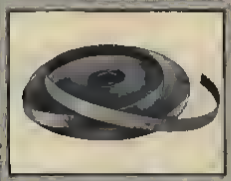

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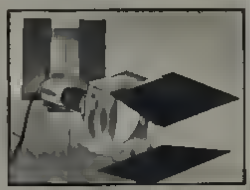

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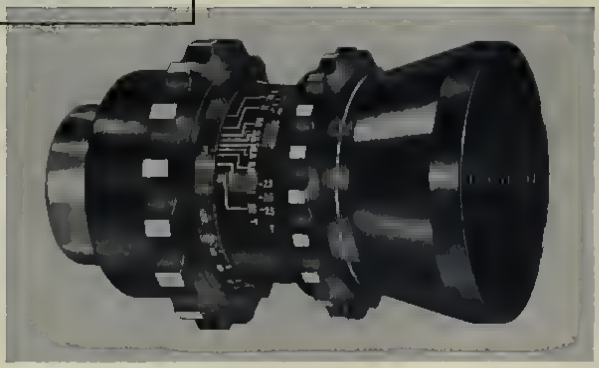

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PHOTOGRAPHIC ASSIGNMENTS

Continued From Page 14

with Jackie Coogan and Marvin Miller. Russell Hayden, director.

RUSSELL METTY, ASC "By Love Possessed" (Mirisch Pictures, Inc—Seven Artists Prods. for UA) with Lana Turner and Efrem Zimbalist, Jr. John Sturges, director.

MURRAY DEATLEY, "The Eye of the Needle" (Gadette Prods. of Arizona) with Seamon Glass and Thayer Roberts. Frederic Gadette, director.

KENNETH PEACH, SR., ASC "You Can't Run Far" (Harvard Films, UA Films) with James Brown and Merry Anders. Edw. L. Cahn, director.

FLOYD CROSBY, ASC, 'Age of Consent" (Vega Prod. for UA) with Patty McCormack and Lee Kinsolving. Buzz Kulik, director.

METRO-GOLDWYN-MAYER

JOHN NICHOLAUS, "Rawhide"* (CBS-TV) with Eric Fleming and Clint Eastwood.

DALE DEVERMAN, NICK MUSURACA, ASC, "The Islanders"* with William Reynolds and James Philbrook.

STUART THOMPSON, ASC, "National Velvet"* (Velvet Prods.) with Lori Martin and Ann Doran.

PAUL VOGEL, ASC, "Oh, Those Bells"* (CBS-TV) with the Wiere Bros. and Henry Norell.

PAUL IVANO, "The Jim Backus Shaw"* (Calif. National Prods.) with Jim Backus and Nita Talbot.

WILLIAM SPENCER, "Peter Gunn"* (Spartan Prods.) with Craig Stevens.

GEORGES PERINAL, "Four Horsemen of the Apocalypse" (CScope & Color, Julian Blaustein Prod.; shooting in Paris) with Glenn Ford and Ingrid Thulin. Vincente Minnelli, director.

JOSEPH RUTTENBERG, ASC, "Spinster" (CScope & Color. Julian Blaustein Prod.) with Shirley MacLaine and Laurence Harvey.

HARKNESS SMITH, "The Americans"*

ROBERT SURTEES, ASC, "Mutiny on the Bounty" (Ultra Panavision & Color; shooting in Tahiti, Arcola Prods.) with Marlon Brando and Trevor Howard. Sir Carol Reed, director.

N.B.C.

ALAN STENSVOLD, ASC, "Dinah Shore Show" (Sewanee Prods.; "Groucho Marx Show" (Film Craft Prods.) "Roy Rogers Show" (Sewanee Prods.).

PARAMOUNT STUDIOS

WILLIAM SNYDER, ASC, "Bonanza"* (NBC-TV) with Michael Landon and Dan Blocker.

FRANK PHILLIPS, "Have Gun Will Travel"* with Warner Anderson and Tom Tully.

FRANK PLANER, ASC, "Breakfast at Tiffany's" (Jurow-Shepherd Prod., Technicolor, shooting in New York) with Audrey Hepburn and George Peppard. Blake Edwards, director.

RUSSELL HARLAN, ASC, 'Hatari!" (Howard Hawks Prod.; Technicolor, shooting in Africa) with John Wayne and Gerard Blain. Howard Hawks, producer-director.

Continued on page 58

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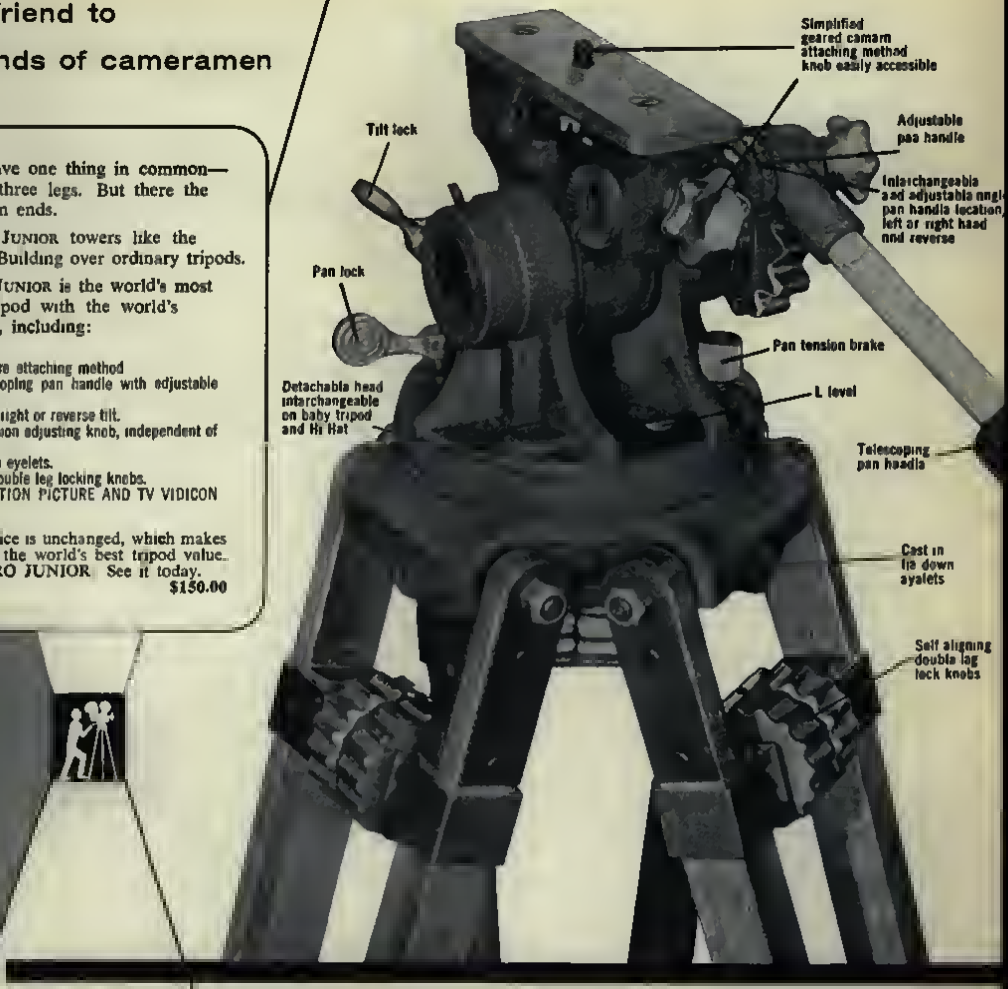
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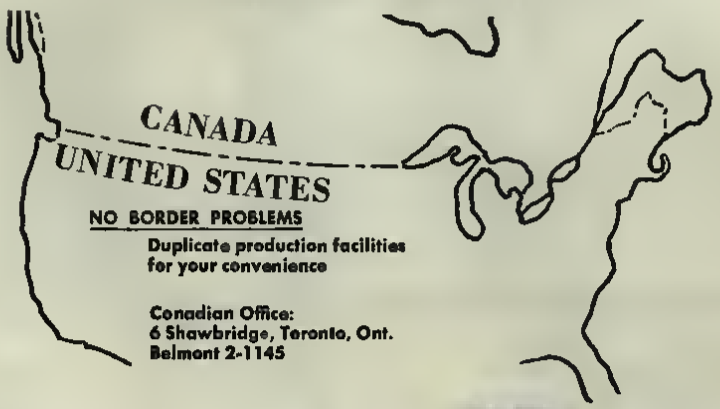

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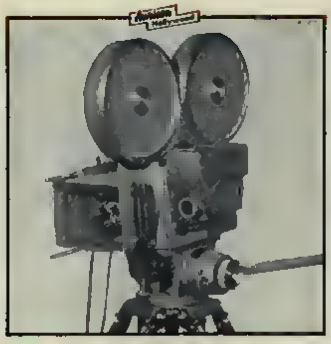

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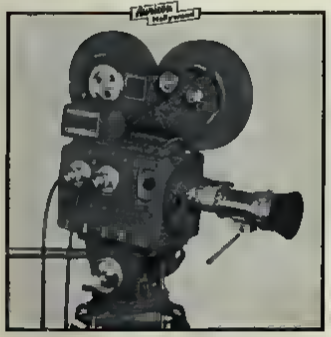

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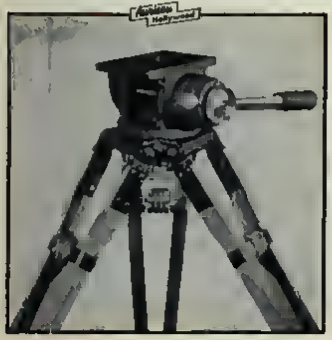

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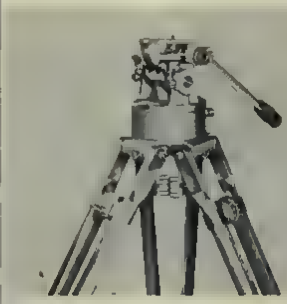

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ColorTru Convertar

A new compact converter, smaller than the standard Colortran, is announced by Natural Lighting Corp., 630 So. Flower St., Burbank, Calif. Tradenamed "ColorTru" converter, it permits use of ordinary 120-volt household lamps for motion picture photography. The converter, rated at 900 watts, will service nine 100-watt, 120-v lamps, or their equivalent in any combination, and will raise their illumination to the correct color temperature for use with either 3200° K or 3400° K color films. List price is $49 50.

16mm Zoom Lens

Wollensak Optical Co, Rochester, N.Y., announces a new, low-priced zoom lens for 16mm cameras. Focusing range is from 20mm to 60mm; maximum aperture is f/1.8. Lens is both a vari-focus lens and a zoom lens and can be used either way. The photographer can pre-set the lens to distance and aperture before he shoots, or he can pre-set distance and zoom-in while he is shooting by manually pulling out the outer segment of the lens barrel. Resolution claimed is better than 50 lines per mm on Plus-X film and 600 lines on television. List price is $298 00.

Continued On Page 50

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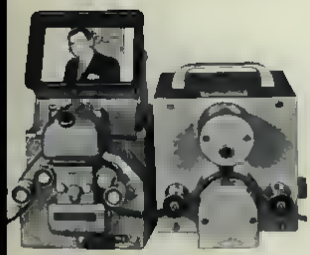

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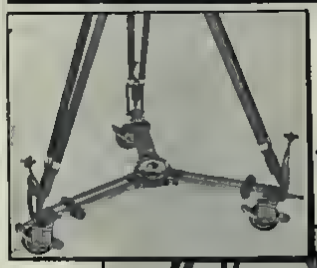

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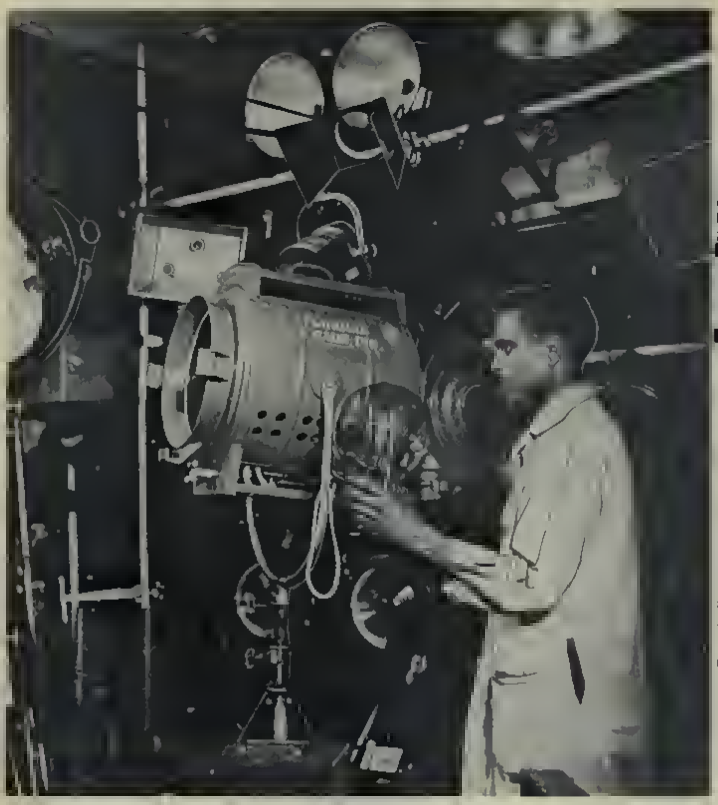

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A New Year—A New Venture

This issue marks an innovation for American Cinematographer in the presentation of contemporary cinematographic procedure to readers.

As our cover indicates, this issue is devoted for the most part to certain techniques and procedures in the photographing of motion pictures. In a sense, it is a condensed textbook on a number of important technical procedures related to motion picture photography and production—the result of numerous requests from readers for information concerning them.

The techniques are not, however, those limited to Hollywood entertainment film production. Business, industrial and educational film production today moves on higher levels than ever before and now utilizes most all of the advanced techniques which had their beginning in theatrical film photography. Many cinematographers working in fields outside Hollywood and other entertainment film production centers have not had opportunity to observe or to work with these professional methods and the equipment incident thereto, hence their letters, and thus our response.

We hope readers in general will find much in the way of helpful technical information in the five articles in this issue dealing with Techniques, and benefit therefrom.

There will be other special Techniques issues to follow, and we welcome readers' comments and suggestions that may be helpful in improving the presentation and content of subsequent special issues.

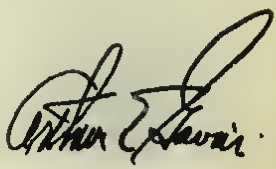


FIG 1—Making a follow-shot on location for MGM's "The Last Hunt" The balloon-tired dolly carries the bulky Technicolor camera, sound boom, and two "Brute" booster lights (out of picture at right) in addition to the camera crew. The dolly was moved and braked by man-power to achieve the precise speed required to keep the camera centered on the riders

Moving-Camera Shots

The mobile camera is an effective means of giving a scene added dramatic impact, for recording sustained action without cuts, or for adding a measure of action to otherwise static scenes.

THE "MOVING-CAMERA SHOT" is executed with the camera mounted on a dolly, boom, or other conveyance so that it moves as the action in the scene unfolds. The camera may be moved "in" (toward) or "out" (away) from the subject, or it may follow a player as he moves about on the set. Or it may simply move forward or backward to take in a certain desired scope of the set or location for orientation purposes—a technique used more and more in shooting action backgrounds for the main and credit titles for a picture.

The moving-camera shot is sometimes also referred to as a dolly shot, a trucking shot, or a follow shot. One of its purposes is to enable the camera to follow a given action or player in order to maintain the same dimension on the screen throughout the action. Another is to enable moving the camera progressively away from or toward a subject or action for sharp dramatic effect—an effect similar to that achieved by a zoom lens.

In most instances, moving-camera shots are very carefully planned in advance of shooting. Often they are specified in the script as the best means of achieving pictorial or dramatic emphasis with the camera. The director of photography and his camera crew execute such shots according to the result de-

sired. Often the decision to shoot with the camera moving is a last-minute choice of the director.

The Equipment

Vehicles or carriers used on the set or on location for making moving-camera shots range from the simple fixed, three- or four-wheel dolly to the powerful, balloon-tired motor-propelled camera car. In between are the crab-dollies, motorized camera cranes, and the giant camera cranes such as the well-known Chapman.

Of all these mobile camera carriers, the dual-steering crab-dolly is the most versatile and helpful when working on the sound stage or on location interiors. Its odd name derives from the fact it affords two distinct travel patterns for moving-camera shots: straight forward or backwards, at the same time permitting abrupt angular turns, or in circles of varying diameters. The four, rubber-tired wheels of the crab dolly are swivel mounted but interlocked so that all four may be controlled directionally simultaneously. Both the front and rear pairs turn on axle spindles in a manner similar to the front wheels of an automobile. A two-position gearshift sets the wheels for the desired travel pattern, or the dolly may simply be guided through conventional steering by a grip, the same as other camera dollies. (See diagram on page 46.) The camera support is usually a short, hydraulically-operated boom arm, affording a range of heights for the camera, but usually not the ability to raise or lower it during a shot, as with the larger counter-balanced camera cranes.

Because of its light weight and low center of gravity, the crab dolly may easily be moved about the sound stage by one man. The two patterns of travel are known as "round" or "square." An advantage of the "round" or circular travel is that it permits moving the camera in close quarters—around massive furniture which cannot readily be moved, or through narrow passageways and corridors. In such maneuvers, the back wheels follow precisely the path of the front wheels, permitting abrupt turns.

The "square" pattern of travel is advantageous in following an actor around the set. The camera can travel in a straight line, then abruptly do "squads right" and continue at right angles with the dolly and camera position (with relation to subject) un-

Continued On Page 46

FIG. 2—To make dramatic follow shots of race cars in action, what better camera car than a speedy sports car? MGM's cameraman Frank Phillips had the Mitchell mounted in the trunk compartment and crouched behind it as the car raced around the course ahead of the racers.

FIG 3—Something different in dolly tracks is shown here—a solid platform constructed of plywood panels nailed to a rigid framework of 2-by-4's. Boris Kaufman, ASC, used it in shooting many scenes on location for "The Fugitive Kind." Dolly is actually a midget camera crane, with the boom counterweighted and providing seats for both the operator and assistant.

FIG. 4—Two toboggans lashed together provided mobility for the tripod-mounted camera used to make important follow shots of a man traveling on snowshoes for "Storm Fear."

BOOM-SHOT TECHNIQUE

How boom shots impart o fluid quality to cinematography and enhance its dramotic potentiols.

IN A SENSE, boom shots are sometimes also moving-camera shots, which are the subject of the preceding article. When the camera is mounted on a large boom to permit a wide sweep of aerial movement as well as to achieve height not attainable with a tripod, perambulator or other floor mount, it does in fact become a mobile camera.

The term boom shot derives from the fact that the camera is mounted on a boom extending from one of several types of conveyances designed for

THE DRAMATIC success of the chariot race in MGM's "Ben-Hur" would not have been possible without the giant camera crane used in photographing much of it. The equipment enabled the camera to capture the race from a wide range of angles and to give movement to the camera to further dramatize the spectacle of the chariots racing before it.

THE RESEARCH COUNCIL Camera Crane, used by many Hollywood studios, is shown here on a Warner Brothers' sound stage supporting the camera for a shot that ordinarily would require erection of a high parallel. With the camera mounted on the crane, changing its angle or moving it to another set-up is a simple and speedy operation.

cinematography. The camera boom is also frequently called a camera crane; thus the term, "crane shot," which is synonomous.

The camera boom being considered here differs from the smaller, hydraulically-operated booms of some types of sound-stage camera dollies in that the boom itself is longer and is counterbalanced with lead weights so that it may be raised or lowered by the boom operator with virtually finger-tip touch. This is a remarkable balance achievement when one considers that on the opposite end of the boom are the camera, its operator and sometimes the assistant or the director himself—a total weight of several hundred pounds.

Briefly, the boom shot technique is employed to follow action, to capture the full scope of a sweeping subject; to more effectively establish the spacial relationship between separate elements in a scene; to focus audience attention sharply on one facet of a wide composition; to inject a measure of movement into a basically static situation; or to photographically tie together two or more compositional components or set-ups in one continuous take. Let us examine more closely the specific function of the camera boom in each of the foregoing classifications of use:

(1) *To follow action.*—This is the basic and obvious function of all boom shots. On the premise that the action of the main subject is of prime importance and that any background which happens to be captured in the scene is a happy dividend, a fairly common application of the boom shot is to start with a high establishing view of the situation, boom in to a close shot of a single character, and then follow the action of that character within the basic situation by keeping the camera on him at close range. The boom is maneuvered up or down, forward or back, as necessary, to enable the camera operator to keep subject centered in the frame.

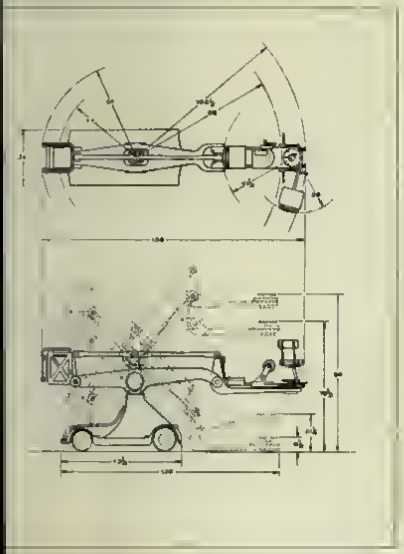
(2) *To capture the full scope of a sweeping subject.*—It is in this function that the boom shot really comes into its own. Picture, for example, how difficult it would be to record the action of a film like "Spartacus" without the aid of boom shots. The very immensity of the subject itself cries out for a panoramic visual treatment.

Similarly, the wide, ever-changing tapestry of a historical subject demands a fluid, all-seeing camera perspective. "The Alamo," for example, profited greatly from such camera treatment. The colorful pageantry of this film epic was given full sweep by a camera which could start out as part of a milling crowd, then boom to a majestic height to view objectively the mass action of the Mexican army on parade, etc.

Perhaps the classic example of a boom shot used to lend full sweep to a historical subject is the famous railroad yard sequence in the memorable "Gone With The Wind." The scene started out as a simple

Continued On Page 52

DIAGRAMS SHOW the wide range of maneuverability of the Research Council Camera Crane pictured in use at left. The combination of possible viewing angles and camera movements is almost unlimited, and affords the cameraman opportunities to develop many new and unusual photographic effects



THE HUSKY, VERSATILE Chapman 6-wheel location crane is a familiar sight wherever Hollywood studios shoot on location. It is being used here by Columbia Studios for shooting action scenes on a distant desert location for "Cowboy."

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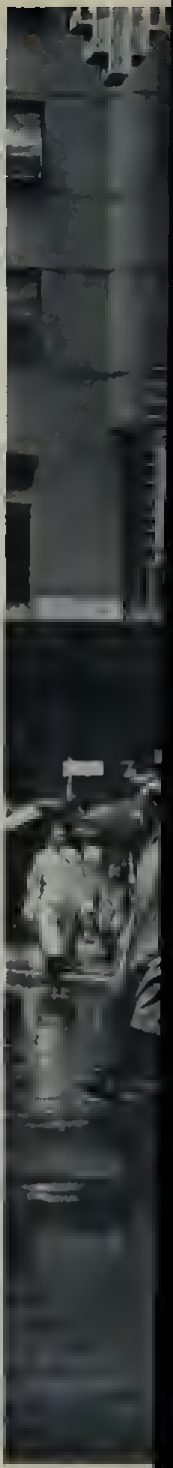

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DOLLY SHOT IN THE MAKING—As grip (3) pushes camera dolly forward, the camera assistant (1) changes focus by means of the remote focusing control extending at left of the blimped Mitchell camera. Meantime camera operator (2) watches scene through viewfinder and keeps camera centered on the osculating couple before him.

Photo, above right, shows camera assistant (4) using remote focusing control some distance away from the Technirama camera. Pre-determined footage marks penciled on scale of instrument show where lens is to be set to correspond with the progressively changing distance between camera and subject

THE TECHNIQUE OF FOLLOW-FOCUS

During the course of a boom or dolly shot, the distance between subject and camera is constantly changing, necessitating re-setting of focus to keep the subject sharp. Conventional follow-focus procedure is explained here.

THE EXTENT TO WHICH boom and dolly shots are used today would never have been possible without the development of a means for accurately keeping the lens in focus as the camera changes its relative position during the course of making the shot. This technique is known as follow-focus, and it can be automatic or manual, depending upon the camera equipment used.

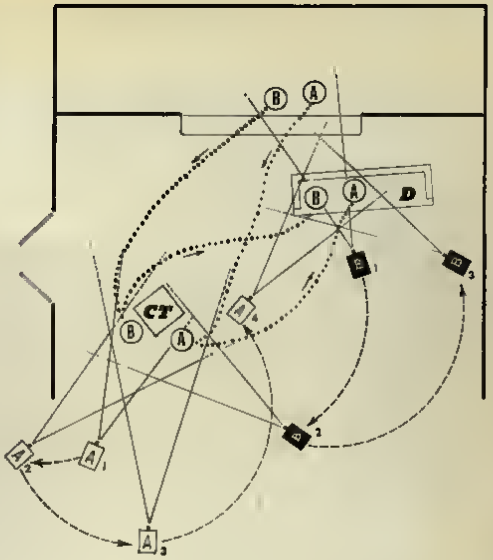
If the camera moves as it photographs a scene or action—or if the actor or actors move toward or away from the camera—obviously there must be a comparable and constant shift in camera focus if the subjects are to appear on the screen sharply focused for the duration of the shot. This can be achieved in two ways: manually—by adjusting the focusing ring on the lens as the camera or actor moves; or automatically—where cameras such as Technirama or the Mitchell NC are used and are equipped with Selsyn remote focusing control.

Follow-focus is no problem with the Mitchell BNC because automatic follow-focus control is an integral part of the camera. The focusing control is geared to the single camera lens and also to the camera viewfinder. As the control is operated the camera lens is focused and at the same time the viewfinder is automatically corrected for parallax.

During the making of a moving-camera shot, or one in which an actor moves progressively toward or away from the camera during the take, the assistant keeps the actor sharp by *riding focus*, to use the sound stage vernacular, continually adjusting the lens focusing to pre-determined settings as the action or dolly shot progresses.

Following focus manually is achieved with such cameras as the Mitchell NC and 16mm by turning a knob on one side of the camera which is geared directly to the lens and which has a white disc in the center for marking with a pencil the various focus

DIAGRAM SHOWS a typical photographic routine with two cameras for a TV film production in which the cameras, A and B, are constantly dollied about the set to cover the actors (A) and (B) in a continuous run, but in such a manner that the cameras do not interfere with each other or intrude in each other's field of view at any time. Here, the respective camera assistants must be constantly alert to keep the actors in sharp focus as the distance between cameras and actors change. The assistant rides the dolly along with the camera operator, and effects focus changes by means of the remote control extending from side of camera blimp.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DAY-FOR-NIGHT SHOTS

How the illusion of nighttime is created in scenes photographed in the daytime.

EVEN THOUGH RECENTLY-DEVELOPED high-speed films now make it possible to photograph many actual night scenes in available light there will continue to be a need for the established day-for-night type of shot. Day-for-night means a scene photographed in daylight having the illusion of nighttime. To achieve this effect, cinematographers employ various combinations of over-correction and under-exposure. The laboratory plays a part in the result, too. Laboratories each have their preference as to the kind of negative best suited to printing a realistic day-for-night shot. Most of them prefer density in the original negative because it is always possible to "print down" to gain a darker effect—whereas it is not possible to obtain a rich, full-bodied print from a thin, shadowless negative.

In making a day-for-night shot using panchromatic negative, over-correction can be provided through use of filters such as a Wratten 25 (deep red) or Wratten 23A (light red). The 25 is normally used where ample light prevails; it has a filter factor of 7. The 23A is better suited to semi-shadow areas; its filter factor is 4. In addition to using either one of these filters, exposure should be reduced approximately two stops. This not only increases the effect of the filter but also decreases detail in the scene sufficiently to produce a more natural aspect of nighttime.

Some cinematographers hold that any sky area in a day-for-night scene should be rendered as dark as possible. Except where a very clear, blue sky prevails this is not always possible if any reasonable detail is to be retained in foreground images. Where it is desirable to have sky area in the shot and to darken it, a neutral wedge (neutral density) filter can be used to filter the sky area. This filter is also the one to use when shooting with back-light, which is highly desirable for day-for-night shots because it renders objects in a scene in semi-silhouette and with an absence of detail in the dark areas — which is natural in true night scenes.

It should be remembered, however, that the sky appears brightest when back-light is employed; there is no blue color to be filtered out, so it must be absorbed by the neutral-wedge filter.

Charles G. Clarke, ASC, who has photographed as many day-for-night scenes in Hollywood, perhaps, as any cinematographer always uses a neutral density (N.D.) filter having a transmission factor of about 50% for night effects in black-and-white.

SET-UP FOR DAY-FOR-NIGHT SHOT: Dotted lines indicate actual area taken in by lens of wide screen camera. Sky area is reduced to minimum by setting camera moderately high and tilting down, eliminating need for sky filter. High intensity light globes are used in locomotive headlights, also behind windows of station so these will "punch through" the underexposure created in achieving the day-for-night effect

Use Of Pola-Screen

A Pola-Screen on the lens will also darken the sky for day-for-night shots, but its use is more or less restricted to shots made when the sun is directly overhead or at right angles to the camera. The Pola-Screen cannot be successfully employed for day-for-night shots if the camera must be panned through a wide arc. This is because the polarization will vary and the sky tone will change in density as the camera moves through the panning arc.

The foregoing applies to day-for-night shots made in open landscapes or exterior long shots where detail in the actors' faces is not important. Where facial details are important, then some additional factors must be considered.

The red filters previously referred to, being over-corrective, increase contrast considerably with

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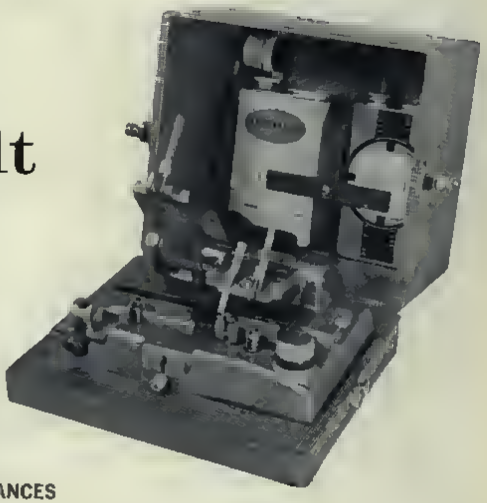

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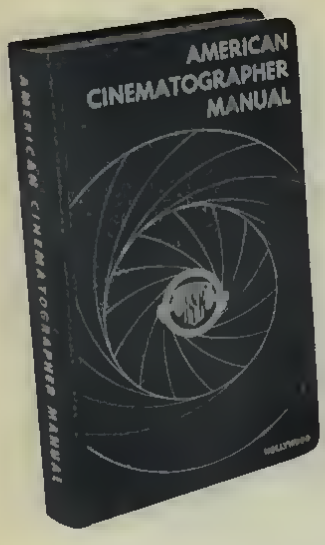

You'll Find

The new American Cinematagrapher Manual is replete with charts, tables, and factual infarmatian related ta the techniques af cinematagraphy far every matian picture phatagrapher.

THE TECHNIQUES OF cinematography, many and varied as they are, are based on certain essentials of procedure. The veteran cinematographer, working with a camera every day, has much of the procedure pretty well absorbed so that performance is virtually instinctive. The less experienced, however, are faced with almost all the problems encountered by the seasoned professional. Thus, to be successful, these cameramen must have ready answers to the many problems they encounter daily in their filming assignments.

Where do they find the answers? Almost every new-generation cinematographer has pencilled notes or charts tucked in his billfold to which he refers whenever some problem of exposure, focus, etc. is encountered. Early-day studio cameramen did the same thing, indicating there always has been a need for a compact ready-reference book of tables, charts and formulas helpful to motion picture photographers.

Today, there is available a new, authentic and very complete data book for cinematographers—the American Cinematographer Manual—in which will be found charts, tables and technical data helpful to those in every field of motion picture production. Almost every cinematic technique is explained or illustrated, and the most essential facts are made available in easy-to-understand charts. Some examples of the technical information available in the Manual are set forth in the "question-and-answer" paragraphs that follow:

Problem: Do you encounter a moisture problem in tropical locations when refrigerated unexposed film is opened for use?

Solution: Moisture will condense on any object—including motion picture film—when its temperature is below the dew-point of the surrounding air. Moisture condensation on film can be prevented by allowing the refrigerated film package to "warm up" before opening it. This requires time, of course, and depends upon the size of the package, degree of insulation and the temperature difference. More details are given on pages 150 and 151 of the Manual.

Problem: What is the depth of field of the Pan-Cinor zoom lens? How is it determined? Also, does the depth of field vary for the various zoom positions?

Solution: As the Manual points out on page 159, zoom lenses possess the same depth of field as lenses of similar focal length for any particular position within its zooming range. The depth of field varies as the lens is zoomed, of course, but this is of no consequence if the object being zoomed remains at a fixed distance from the camera.

Where a zoom lens is zoomed on a moving object or from one object or subject to another, then follow-focus must be employed to keep the subjects in sharp focus.

An important point to remember is that a zoom lens should always be visually focused at its widest aperture and at the telephoto position to insure overall sharpness and exact centering throughout the zooming range.

Problem: You are on your first assignment to photograph a film for television. One of our problems is knowing how much margin of safety to leave around a composition for the TV transmission cut-off or frame-reduction when composing a scene in the camera finder.

Solution: There is no need to guess here; there is a comprehensive table of "Television Safe Action Areas" on page 184 of the Manual for both 35mm and 16mm camera lenses. Essentially, the chart shows the horizontal and vertical angles in degrees

t In The Manual!

for 35mm lenses ranging from 20mm to 150mm, and for 16mm lenses ranging from 5.7mm to 100mm, so that the cinematographer can determine at a glance where to place his camera for a given shot.

The subject of "Safe Action and Safe Title Areas" is discussed at length in a chapter beginning on page 329 of the Manual and is accompanied by diagrams, reproduced on this page, that show these "safe" areas with respect to the camera apertures of both 35mm and 16mm films.

Problem: There's a small object to be photographed at extremely close range. How do you do it? With a special lens? By using extension tubes? Or can a telephoto lens be used for this?

Solution: The Manual has the answer for this problem, too, on page 187. As revealed in the chapter titled "Extreme Closeup Cinematography," there are two basic methods for photographing very small objects at very close range: by using extension tubes or a lens bellows in conjunction with the camera lens, or by adding a supplementary closeup lens—mounting it in front of the regular camera lens.

The chapter explains when extension tubes should not be used; how it is possible to shoot ultra-closeups with the regular lens mounted on the camera in reverse; and the precautions that must be taken because of the extremely shallow depth of field prevailing when extension tubes or a bellows is used.

An important consideration, as the Manual explains, is that use of extension tubes or a bellows changes the f/stop values of the lens used. But the cinematographer is aided in this problem by four charts which enable him to tell at a glance how much the lens must be opened up in shooting ultra-closeups with the aid of extension tubes.

Problem: When using two or more lenses in photographing a motion picture, it is understandable that all of the lenses should give essentially the same exposure result at comparable apertures. How does the cameraman proceed when some of his lenses are calibrated in T stops, while others are calibrated in the conventional f/ stops? Is there a table or chart available that shows the comparative T stop for each F/ stop?

Solution: First let us answer the last question: The answer is "No." As is pointed out on page 203 of the Manual, there is no fixed ratio between T stops and f/ stops which would apply to all lenses. Any difference between the T stop and the f/ stop of a lens represents actual light losses within the lens due to reflection from the glass-air surfaces and from absorption within the glass itself.

Re-calibrating a conventional f/ stop lens in T stops is an individual custom job, with the T stops determined from an exacting measurement of the light transmission of the lens at various stop positions.

Therefore, where absolute uniformity of exposure is expected in using a variety of lenses on a production, it is essential that all of the lenses to be used be balanced and re-calibrated—preferably in T stops so that when a shot is made with one lens at, say T 8, the next lens can be used with the aperture set at the same T stop with assurance that

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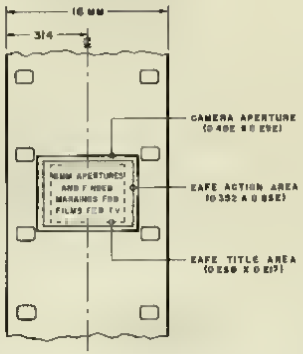


DIAGRAMS SHOW the apertures and finder markings defining the "safe" action and title areas for 16mm and 35mm films for television as established by the American Standards Association. Title lettering should not extend beyond the dotted lines and action should be kept within boundaries of secondary solid line to insure complete reproduction of the film frame on television.

HIGHLY STYLIZED set for "Within Man's Power (1953) in which the scene is suggested rather than depicted in full detail is excellent example of the experimental film-maker's art. The photography involved 18 light changes, required 7 hours of lighting rehearsals for a scene screening one minute

THE

By CHARLES LORING

THE CRAFT OF CINEMATOGRAPHY has a dual personality. On the one hand, it is a technical skill predicated on and limited by certain immutable principles of physics, optics and chemistry. On the other hand, it is the skillful use of an artistic instrument which (in the hands of a competent craftsman) becomes the medium for visually realizing a thought, idea or story on the screen.

There is no short cut to skillful cinematography. No matter if one wishes ultimately to become a Hollywood Director of Photography (with the coveted designation "ASC" after his name), a professional cameraman shooting commercial or documentary films, or merely a home-movie maker a cut above the amateur level—certain technical know-how must be gained and assimilated. It goes without saying that the aspiring cinematographer should know everything possible about motion picture cameras, lenses, emulsions, film speeds, filters, lighting, exposure, depth-of-field, hyperfocal distance, and a myriad of other physical, optical and chemical principles peculiar to motion picture photography. Such knowledge can be gained in classrooms, through observation (and questioning) of someone who already has it, and through diligent study of texts and handbooks on the subject.

But the use of the motion picture camera as a *creative instrument* is something else again, for this is a skill that cannot be learned through books and lectures. There are only two ways to really learn anything about it: first, by viewing and analyzing outstanding films of all types—and, secondly, by plunging in and actually making films. Because the *experimental* film places virtually no restrictions upon the creativity of the serious student of cinema, it can function as a valuable, even *necessary*, training ground for the aspiring cinematographer. Nor is it the novice alone who can benefit from observing and working with this type of film. Many an established cameraman, bogged down in a rut of tried-and-true conventional technique, can infuse new life into his work by allowing his camera to take off on an occasional flight of experimental fancy—on his own time, of course.

Just what *is* an experimental film? The term should be self-explanatory, but it has been so loosely used and abused that it is difficult to pinpoint a satisfactory definition. Moreover, in recent years the designation has taken on a peculiar *mystique* as a result of the rarefied efforts of would-be *avant-garde-ists*, pseudo-intellectuals and sensation-seekers who have attempted to substitute film for psychoanalysis. To cut away the

THE EXPERIMENTALIST'S objectives may seem "way out" when he's shooting, but on the screen there usually unfolds some highly imaginative work worthy of any professional's consideration. More than once an experimentalist has created some new and impressive photographic treatment that later was adopted in the photography of a feature film

EXPERIMENTAL FILM

—proving ground for the cinematographer.

esoteric underbrush and arrive at a definition that is clear and simple, one might say that the experimental film is a type of motion picture made primarily for the purpose of trying out certain techniques of expressing an idea or mood on celluloid.

The important point is that one is frankly and openly *trying out* techniques. The very word "experiment" implies a searching in which failure is, if anything, more likely than success. For this reason, the experimentalist should not be chagrined or even surprised if many of the effects he attempts do not quite come off. On the contrary, in working with film it is often possible to learn more from a failure or near-miss than from an out-and-out success.

We shall assume that the aspirant has learned thoroughly, at least in an academic way, the technical principles of cinematography. With continued application these mechanical axioms will fuse into a kind of technical sixth sense so that they will not demand nearly as much conscious attention as they did in the beginning. Assuming, then, that our cinematographer knows not only what to do, mechanically speaking, but *why* he is doing it—what is the next step? One might reasonably say: "Run out and buy a quantity of film and start banging away with the camera." But such a haphazard approach would invariably result in a waste of time, effort and costly raw stock.

By far the more practical approach is to begin by viewing and analyzing outstanding films which have been made by other experimentalists. The object of this is not to copy what they have done or even to be inspired to do something similar. Rather, the value of such analysis lies primarily in getting used to the idea of filmic experimentation and throwing off the fetters of conventionalized approach.

Where does one view experimental films? There are at present almost 500 film societies scattered about the country whose sole objective is to make available to a special audience outstanding films of an experimental nature. Every large city has at least one such society and many smaller towns have launched them with considerable success. Sometimes these are private clubs whose showings are restricted to members only, but more often the screenings are open to the public. A good many of these societies build their programming around the excellent rental library of the Museum of Modern Art, while welcoming other films from outside sources.

All of the films shown are, by no means, well done—nor do they necessarily have anything profound to say. A certain percentage of them seem to have been made solely for the purpose of purging their producers of various inner conflicts, frustrations, inhibitions or traumas. As such they deal blatantly with sex, usually in its more

Continued On Page 50

THE SUBJECTIVE CAMERA is essentially the out-growth of the experimentalist's cinematographic explorations. Here the technique was used most effectively for impact shots of boxers in action for "Champion" (1949)

THE BOOM-MOUNTED Technirama camera is set low for a closeup of Jean Simmons for "Spartacus." Despite the bright, sunny day, a booster lamp is used to add fill light.

THE GIANT camera boom is again employed—this time raised high to provide a high vantage point for the Technirama camera being readied for an action scene for "Spartacus."

Filming "Spartacus" In Super-Technirama

Russell Metty's mobile camera technique enhances both the action and the settings in one of the year's best-photographed motion pictures.

By HERB A. LIGHTMAN

To capture the full sweep and flashing action of "Spartacus," Director of Photography Russell Metty, A.S.C., mounted Super-Technirama-70 cameras on camera cranes and dollies and kept them moving so skillfully that the audience finds itself constantly in the midst of what is happening without realizing that the camera is on wheels a good part of the time. Thus it is that the fluid camera contributes at least as much as the excellent performances to the excitement generated by this "Roman Western," to use a rather apt descriptive term coined by one of the critics.

"Spartacus" is the story of a Roman slave, trained as a gladiator, who leads his fellow serfs in a protracted and almost successful revolt against the legions of Rome. In the course of its three-hour running time the film pauses for a few intimate sequences to delineate character and relationship, but mainly it is an action film, concentrating on scenes of gladiatorial combat, the surging forces of revolt, and intricately staged battles between the rebel army and the precisely maneuvered Roman legions. As an action film it demanded an active camera, and this is exactly what was provided to tell this colorful story.

The film was photographed in Super-Technirama-70, a Technicolor process in which 35mm color negative travels horizontally through the camera, recording an

oversize image in a 2-to-1 aspect ratio. The large frames are then contact-printed in vertical sequence on 70mm film for release. The process can also be used with an anamorphic lens, which puts a slight squeeze on the image, making possible a projected picture similar to Cinemascope, with an aspect ratio of 2.55-to-1.

Because of this large format and his awareness that the tinest jiggle of the camera would be enormously magnified on the giant screen, Metty went to extraordinary lengths to insure the smoothness of dolly and boom shots, so that the cinematic illusion would not be disturbed. Dolly tracks were precisely milled and then carefully wedged to equalize irregularities of terrain. In several cases, studio stage floors were repaired or rebuilt to eliminate the slightest hump that might interfere with the smooth movement of the camera.

The real acid test, as far as camera movement is concerned, came in filming a sequence in which the slaves are seen toiling on a steep cliffside thousands of feet above the floor of a sweeping, arid valley. This sequence was shot in Death Valley on the site of an abandoned gold mine, and the actual terrain is just as precipitous as it appears in the film. All of the equipment, including Universal-International's huge Chapman crane with its custom-adapted 35-foot boom, had to be hauled up a dangerously rutted, washed-out dirt road which had not been used for many years. Part of the needle-sharp mountain top had to be bulldozed away to make a perch for the bulky camera equipment, booster lights, and the intricate maze of dolly tracks laid to follow the action. In the finished film the camera sweeps and soars with incredible smoothness, dangling the audience in space and giving it a subjective view of the action that is, to say the least, hair-raising.

Metty's lighting in "Spartacus" facilely adapts to the shifting moods of the story. On Kirk Douglas and his fellow gladiators he used rugged cross-lighting to emphasize their virility. Jean Simmons, playing the somewhat less-than-glamorous role of a slave girl-concubine in the school for gladiators, is lighted in a way that accentuates her femininity while avoiding an over-pretty effect. The Roman aristocrats, as epitomized in the film by Sir Laurence Olivier and Charles Laughton, are lighted with crisp elegance to suggest the lavish milieu in which they moved.

Metty's artful lighting also lent special character to the sets. The Roman Senate, for example, is limned in clear, sharply focused planes of light, suggesting the impersonal, almost antiseptic efficiency of that legislative body. The dungeon-like cells of the gladiators, by contrast, are suffused with murky light of a slightly warm tinge, suggesting no direct light source, but rather a densely diffused spill-light filtering in through the grates in the ceilings of the cells.

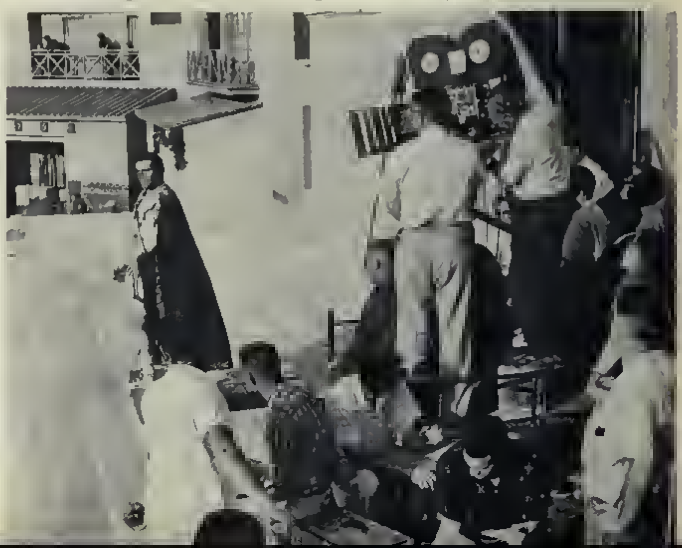
Lighting these cells posed a significant problem, since they measured only 4 by 6 feet in area, with most shooting being done full front. This precluded the advantages of wild walls; also the problem was further complicated by the fact that the set was architecturally a two-story unit including areas and passageways above the cells of the gladiators and connecting with them by means of a stone stairway. The geography of the set had to remain intact at all times while still permitting a variety of angles and freedom of camera movement. Needless to say, it was necessary to take advantage of every opening in the set as a vantage point from which to shine a light.

Metty was one of the first Hollywood cinematographers to risk a high contrast ratio in lighting for color, although this technique has now become fairly standard practice. He characteristically lights low-key set-ups with a contrast ratio ranging from black shadows to 150 foot-candles in the highlight areas. Although he uses little or no fill light, he manages to produce a sharply dramatic visual effect without the harshness that might be expected.

"Spartacus" is said to be the most expensive picture ever filmed in Hollywood. Its budget exceeded $15,000,000, and it employed 10,500 people, from artisans to extras, in a total of 251,837 man-hours. Director of Photography Metty worked on the picture for a solid year, with 167 days of actual shooting. The sets, budgeted in ex-

Continued On Next Page

UNDER THE DIRECTION of Russell Metty, ASC, the Technirama camera captures a high moment in "Spartacus" when Laurence Olivier takes command of all the Roman armies. The scene requires no sound recording, and so the camera is being used without blimp.



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FILMING "SPARTACUS"

Continued From Preceding Page

cess of a million and a half dollars, included the gladiators' school, the Roman Senate, the lavish baths of Rome and the villas of various noble Romans. One such sumptuous residence, depicted as belonging to Senator Gracchus (portrayed by Charles Laughton) overran the famed Universal-International Phantom Stage, site of the opera house where Lon Chaney and years later, Claude Rains, unloosed the giant chandelier which crashed down on heads below in "The Phantom of the Opera."

Lighting these vast sets demanded a tremendous amount of illumination, especially since many of the lamps were filtered to project colored light into various areas of the set. The filters, of course, sharply reduced the amount of exposurable light. To solve this problem, Metty used the new, fast Eastman-Color negative, which was just then being introduced to the industry and which is twice as fast as the earlier Eastman-Color emulsion. This meant that only half as much light was required to illuminate the vast interior sets—and it also meant, to historians concerned with such facts, that "Spartacus" was the first major Hollywood production to utilize the new fast color negative.

"Spartacus," despite its sumptuous interiors, is essentially an outdoor picture and, while one exterior countryside set was constructed on the sound stage and used to advantage in several sequences, the bulk of the action was actually staged in outdoor locations on the studio back lot and surrounding areas. Early in the preplanning of the picture it was decided not to shoot the picture in and around Rome, as might have seemed the logical choice. A location scouting trip to Italy indicated that there was nothing in the Eternal City that could not be duplicated within short commuting distance of Hollywood or in the studio back lot. In the words of the film's star-producer, Kirk Douglas: "You've got to rebuild ancient Rome anyway in order to shoot Roman history. Why cross a continent and an ocean to do that when the finest pool of technicians and talent in the world is right in your own back yard?"

And so, Rome came to Hollywood. An area of rolling hills behind the Universal studios was kept perpetually green by means of special irrigation equipment. The hillside was planted with olive trees and other flora native to Italy. In the valley below these hills the sprawling set representing the gladiators' school was constructed. A small Roman temple was erected on the ridge commanding the valley. The total vista as it appears in the establishing shots, is indeed, quite authentic and extremely pictorial.

Other location sites dotted miles of the burgeoning San Fernando Valley. The terrain of Thousand Oaks, California, sandwiched among breweries, auto assembly plants and rocket-fuel testing stations, is a carbon copy topographically of the land rolling South and West from Rome and Capua toward the Tyrrhenian Sea. Over these stubbled hills Spartacus herded his rag-tag army in a death march culminating in the film's climactic battle scenes, which were filmed later in Spain.

Professor Vittorio Novarese, flown to Hollywood from Rome to serve as Technical Advisor on the picture, was unable to detect any anachronisms in the terrain, but there were aspects of the filming that were decidedly unlike ancient times. Skirting the craggy, brush-filled perimeter of the battleground, the defeated slaves stumbled along an amazingly authentic recreation of the Appian Way. But there was a menacing reminder that this is the atomic age. The dialogue of dying serfs was punctuated, from time to time, by horrendous blasts thundering up from the other side of the hill where the Rocketdyne Corp. tests solid fuels for tomorrow's missiles and satellites. And back at the gates of Rome on the Universal lot where Douglas kills his best friend, Tony Curtis, in a forced fight-to-the-death, a 125 foot cyclorama rose behind the great wall. Had the camera shot this fabled entrance to the ancient city without the backdrop it would have picked up the roaring traffic of the Hollywood Freeway.

Several other nearby locations, including the rock-studded mountains near Chatsworth, were used to striking advantage. The one pictorial element which Nature omitted—dramatic cloud formations—was provided by means of expertly-photographed glass shots. Metty preferred to use glass shots (considered by some to be an outmoded technique) rather than traveling matte shots because he felt he

could get a truer perspective, a better match of light, and could avoid the jiggle which so often accompanies a double-printed scene.

While the mechanics of the glass shots were simple, they had to be executed with extreme care. A panel of clear glass about six feet square with clouds painted on the upper part was set up about six feet from the camera lens and carefully "tarped" to eliminate reflections. A 35mm lens (wide angle for the 70mm format) was stopped down to f/11 for sufficient depth of field to insure sharpness in both planes. The focus was carefully split according to formula and the scene was shot. The final vistas as they appear on the screen are lush with the billowing clouds for which Rome is famous, but which rarely grace the bald skies of Hollywod.

Metty utilized an off-beat handling of camera angles in order to emphasize the conflict of the battle sequences. Defying standard rules of cutting which mitigate against the use of abrupt changes of angle, he audaciously mounted his camera so that cuts would be made directly from extreme high angles to extreme low angles. This meant, of course, that the editing had to be smooth and precise and avoid any abrupt jumps in action. But the use of this technique, especially in the sequences of hand-to-hand gladiatorial combat, added an element of excitement that draws the audience closely into the action.

The close-in skirmish of the final battle scenes were filmed at the studio, with Metty setting the photographic mood and effectively capturing the impact of battle. The matching long shots showing the spectacle of huge armies massed in far-flung combat were shot in Spain by Clifford Stine, A.S.C., functioning as Second Unit director of Photography.

Eight thousand soldiers of the Spanish Army were hired as extras for the battle sequences and specially trained in the complicated battle maneuvers of the ancient Roman legions. A vast plain stretching to camera infinity was located 40 kilometers from Madrid. On this ground, where the armies of Rome had not marched for 2,000 years, Sir Laurence Olivier's legions clashed with Kirk Douglas' slave-gladiator force. The Technirama cameras, mounted on three 110-foot towers, ground away at the battle in winds ranging upwards of 40 miles per hour. Metty is vociferous in his

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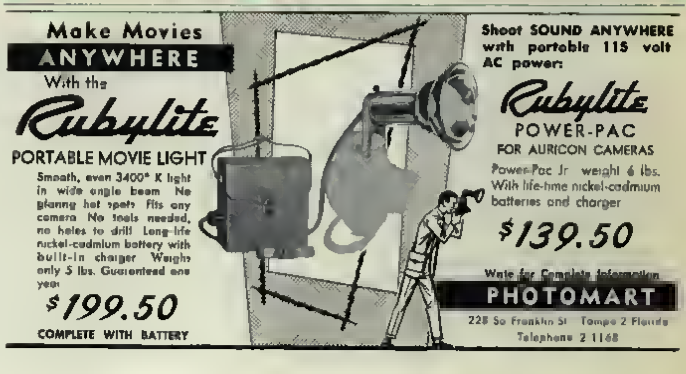
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praise of the magnificent job of photography accomplished by Stine in shooting these sequences and especially in the manner in which he matched the photography to the closer action scenes previously staged at the studio. Stine also photographed the scenes enacted at William Randolph Hearst's multi-million dollar "castle" at San Simeon, Calif. Now under the supervision of the California State Park Commission, one of the main buildings at San Simeon appears spectacularly, if all too briefly, as the exterior of Sir Laurence Olivier's lavish Roman villa.

For Russell Metty, A.S.C., "Spartacus" is the culmination of a 15-year tenure as Director of Photography at Universal-International Studios, where, originally, he started to work on a "temporary" basis. He has been at U-I ever since, utilizing the same camera crew over the years and filming some of the studio's biggest hits, including "Written On The Wind" and "Imitation of Life." Following "Spartacus," he photographed "Midnight Lace" and "The Misfits," the latter starring Marilyn Monroe and the late Clark Gable. He is currently photographing "By Love Possessed," starring Lana Turner. ■

MOVING CAMERA SHOTS

Continued From Page 29

changed. In other words, the dolly remains pointed in the same direction, with the wheels only changing direction in making the right-angle turn.

Both on the set and on location, most moving-camera shots are made with the dolly moving on tracks. Tracks may be lengths of wooden planks or sections of channeled aluminum which provide a positive guide for the dolly during the course of its travel during a shot. It is extremely important that such tracks be rigid and not subject to "quaking" under the weight of the dolly and camera crew as they move over them. Therefore, after tracks are laid, the director of photography checks the tracks for smooth dolly travel. Where there are any depressions in the tracks, because of an uneven floor or uneven terrain on a location site, wooden wedges are driven between the tracks and the floor or ground to raise the track section to the desired level.

Among the unsung heroes of a successful moving-camera shot operation are the grips who must know how to precisely move a dolly at the speed demanded for the particular scene to be filmed; also the camera assistant whose duty it is to change focus whenever there is a change in the distance between the actor or actors and the camera during a moving-camera shot. Sometimes this is worked out in advance and cue marks established for guidance of the grips and camera crew, but very often it is a matter of good judgment—a good eye for distance.

It often happens when a company is shooting on location that inspiration for a moving-camera shot occurs to a director, and the director of photography must then improvise some means for accomplishing it. Thus toboggans, rowboats, a child's express wagon, and countless other conveyances have been put to use as a camera carrier in making an impromptu moving-camera shot.

The accompanying photos illustrate some practical uses of the mobile camera in executing dramatic photography of Hollywood productions. Fig. 1 shows an MGM camera crew filming a follow shot in closeup of riders for "The Last Hunt." In addition to a crew of several men, the camera dolly also carries the bulky Technicolor camera, the sound boom and two "Brute" booster lights (not shown). The dolly track consists of 2-by-12 planks laid on 2-by-4 ties and wedged where necessary to achieve a smooth, even surface for the dolly wheels.

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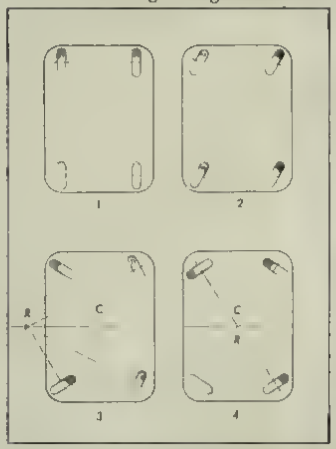

DIAGRAMS show how wheels of crab dolly are set for smooth, sharp turning on own axis or in any desired arc. Wheels can also be locked parallel for straight tracking in any direction.

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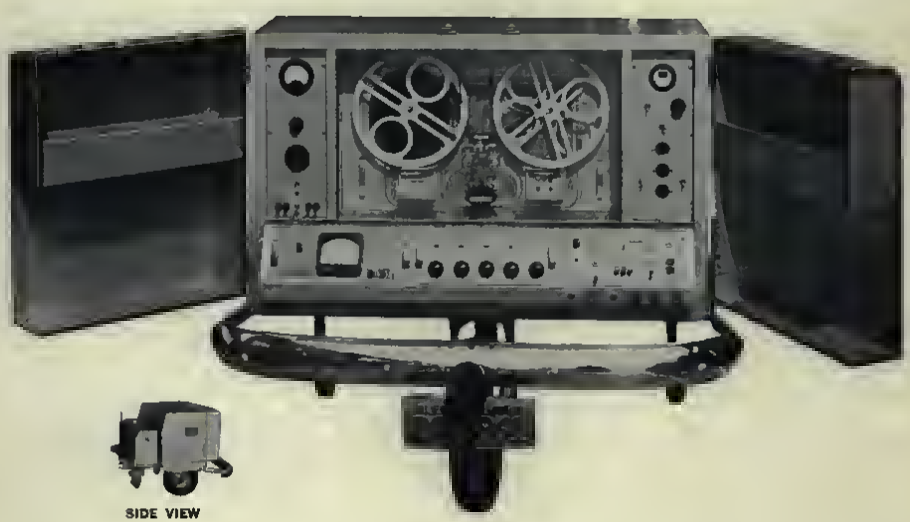

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for its production of "The Racers," the Mitchell camera was mounted in the trunk section of a speedy sports car, as shown in Fig. 2.

Some cinematographers prefer a solid platform instead of tracks on which to roll the camera dolly. One of these is Boris Kaufman, A.S.C., shown in Fig. 3 lining up a dolly shot on location for "The Fugitive Kind." Note the generous use of wedges beneath the platform to effect a level surface for the camera. The platform was constructed of panels of plywood nailed over a rigid 2-by-4 framework.

When the director wanted the camera to follow a traveler on snowshoes for a scene in "Storm Fear," a few years ago, the ingenious cinematographer mounted the camera and tripod on two toboggans lashed together, which were then pulled by grips. (Fig. 4).

In industrial film production, the familiar fork-lift frequently serves as a dolly and camera boom. In Hollywood, the hydraulically-operated forklift has been adapted to certain types of camera cars for location shooting, and has been invaluable where two cameras must be mounted together at varying heights in shooting a scene.

Dolly shots are made on water as well as on land, and this is usually accomplished by mounting the camera on a raft, rowboat, etc. Helicopters are finding increasing use for making moving-camera shots from the air, enabling the cameraman to get shots that would be impossible with other types of aircraft. Vehicles have been commandeered on location for making mobile camera shots that ranged from a child's express wagon to a Mexican's ox-cart.

When the zoom lens was first introduced, it was freely predicted that it would eventually supplant the camera dolly. Despite such predictions, however, the mobile-mounted camera continues in use. The pictorial effect of a zoom lens shot is not exactly the same as that achieved with the moving-camera. And besides, the latter affords greater flexibility and much wider scope. ■

YOU'LL FIND IT IN THE MANUAL!

Continued From Page 39

exposure results will be uniform. It is a common fallacy that a T stop of a given figure is the exact equivalent of a certain f/ stop, but T stops are calibrated electronically, whereas f/ stops are calculated geometrically. T stops are based on the amount of light emerging from the rear of the lens and forming an image on the film; f/ stops are based on the amount of light that enters the lens.

Problem: There is confusion among many photographers as to the relative merits of measuring the incident light as against measuring the reflected light in a scene. Each method requires its own type meter and manner of using same to determine exposure. It is important that the professional cinematographer fully understand the techniques of measuring light for good photographic results.

Solution: The instruction book that usually accompanies every new exposure meter sold explains its method of use for its respective purpose—incident or reflected light measurement. None of them explain *both* systems of light measurement.

The chapter on Exposure by Don Norwood, which begins on page 206 of the Manual, gives a comprehensive explanation of the technique of measuring light for photographic purposes. Briefly the reflected light meter measures the light which is *reflected* from the scene; the incident light meter measures the light *that falls* on the subject or illuminates the scene. It measures the incident light intensity at the location of the subject, and it also takes into account the conditions of illumination geometry — that is, whether the subject has a front key light, a side key light, or a back key light. The incident light meter combines these factors and gives an answer in terms of the correct setting for the camera lens diaphragm.

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FOLLOW-FOCUS TECHNIQUE

Continued From Page 35

jiggle or erratic movement will detract from the effectiveness of the shot.

The axial dolly shot, in which the camera is moved past actors or objects on the set is probably the most widely used because of the interesting pictorial effect that is created as the camera approaches and then passes various objects or persons in the scene. An example is a scene that opens with the dolly-mounted camera in position for a long shot of a man seated behind a desk in a modern, well-furnished office. As he speaks, the camera moves forward to a tight closeup of him. Here, there is considerable focus change as the camera is moved from long shot to closeup; the focus ring is moved slowly at the start, then more rapidly as the camera approaches the player.

To aid the assistant alter focus as the dolly moves forward, various marks or cues are employed. The far and near limits of the dolly travel should be clearly marked on the stage floor with chalk or tape, and intermediate tapes or chalk marks should be established to guide him in making focus changes during course of the dolly travel

Where marks on the floor might be picked up by the camera, other methods are used, such as having an assistant stand on the side lines parallel to the dolly tracks and signal the assistant cameraman at each point a focus change is to be made Trial runs beforehand enable this technique to be perfected and permit the assistant to memorize the focus change apertures

Focus generally remains constant for tracking shots except, perhaps, at the beginning and the end of the shot when the camera or the actors may move into a position further away or closer than that prevailing during the tracking phase. Here focus is changed as the actors approach the camera.

Where difficulty may be encountered in keeping one or more actors at a fixed distance from the camera during a moving camera shot, two sticks nailed in the form of a large T and extended ahead of the dolly below camera range will keep them at the proper distance and obviate the necessity of changing focus during the take.

In the second method described above, in which the camera remains stationary, focusing is a simpler matter because there is no dolly movement and changes must be made only when the actor or actors move beyond the depth of field range and thus require an adjustment of focus. During the rehearsal, the actor's position at the various points where he moves or stops in his travel on the set is measured with a tape, the positions marked on the floor, and notations made corresponding to the positions to indicate what focus changes are to be made.

Typical examples of such situations are as follows: 1) The heroine, in a closeup, reads a letter, then turns and walks to the far end of the room and pauses reflectively before a fireplace Here the focus setting must be changed rapidly as the girl begins to move back, then gradually slower as she retreats and stops at the far limits of her prescribed movement. 2) The hero enters through a far door, walks toward the camera, picks up a telephone and speaks as the camera comes to a stop in a full screen closeup of the man. Here, the lens adjustment would be just the reverse of that indicated for example No. 1.

In the fourth method described above, in which the camera remains stationary but persons or objects within the scene alternate in sharp focus, a procedure of focus changing known as *snap-focus* is employed An example of this would be where an actor's face substantially fills the frame in a closeup He suddenly turns and looks at a clock on the far wall As he turns, focus is changed abruptly so that the clock is sharply in focus This same method is often used in making a two shot, with one actor facing the camera and the other with his back to the camera—so that the camera looks over his shoulder at the first. As one player, sharply focused, completes his dialog and his companion—out of focus—starts to speak focus is abruptly changed to bring the latter in sharp focus, etc.

Wide-angle Lens

Wide-angle lenses, because of their inherently greater depth of field, are the easiest to use for follow-focus shots. Because of the lens' short focal length, small focusing errors are cancelled out even at full aperture, and the larger angle of coverage spreads out and minimizes any irregularities in dolly travel during a take

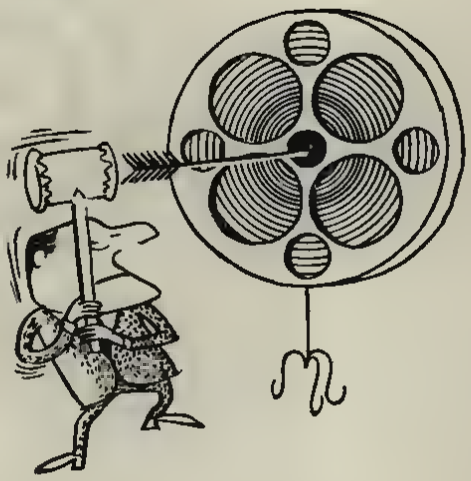
The use of reflex cameras such as the Arriflex, Camerette and others greatly simplify the execution of follow-focus

"It fell to earth I know not where."

because of the operator's ability to observe focus and parallax at all times through the camera's reflex finder

When using other cameras, the cinematographer should keep in mind the importance of parallax as well as follow-focus. Thus, he should always set parallax for the termination of the moving camera shot; the camera should be accurately lined up for the beginning of the shot, then just before shooting starts the finder should be set for the end of the shot This will insure perfect centering as the camera pulls back or moves into its final position. Thus a pull-back shot should be composed with camera in the near position before filming starts, and the finder set for the far position.

A good assistant cameraman should be able to quickly master the mechanics of follow-focus techniques, but the development of ability to achieve perfect timing, so that it becomes almost instinctive, requires considerable practice and experience. "Riding focus" on movement in an action scene or "snapping focus" on abrupt changes demands split-second timing in order to coordinate lens movement, camera movement and movement within the scene so that all three are integrated for the most subtle but effective screen result. ■



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EXPERIMENTAL FILM

Continued From Page 41

perverted forms, or with an outpouring of neurosis which, carried to extremes, suggests a regurgitation of the id They are usually rife with "symbolism" of a type so flagrantly Freudian as to be laughable Some of the more "impressionistic" efforts are so jumbled that they strongly suggest somebody swept up the cutting room and spliced together at random every film fragment over two frames in length One might forgive a dearth of content, however, if at least such films revealed a certain basic technical know-how. But, unfortunately, they are all too often marred by shoddy technique, poor photography and inadequate lighting—which their producers attempt to justify with terms like "realistic" or (in desperation) "surrealistic." The simple truth of the matter is that many of these films are made by would-be "artistes" who have not bothered to learn the basic mechanics of cinematography. Carried away in their frenzy to be arty on celluloid, they fail to become conversant

with the technical tools of the trade.

Thus, the first lesson to be learned from these inept spectacles is that ahabby technique, far from constituting "art," can detract mightily from any idea, be it ever so lofty, that the film maker might wish to put across. There is a great deal to be learned from these poorly executed offerings if the student can become perceptive enough to analyze what was done badly and why.

There is, however, even more to be learned from the many *well*-executed experimental films now in circulation. Space permits mentioning only a few such films which have become classics in their own way.

"Dreams That Money Can Buy" is a fascinating feature length color film produced by Hans Richter in 1947, which includes seven separate "dreams" shaped after the conceptions of a group of outstanding contemporary artists. Besides Richter, the distinguished roster includes Alexander Calder (whose "dream" is a ballet of the universe performed with mobiles), Man Ray, Max Ernst, Fernand Leger and Marcel Du Champ (whose famous painting, "Nude Descending a Stairway," is brought to cinematic life by superimposing flat color discs carefully timed and synchronized to the movements of a live female nude figure descending a stairway). The camera technique throughout this film is of high technical quality and extremely imaginative in concept.

"The Naked Eye" is a much-honored film made in 1957 by Louis Clyde Stoumen and represents an astounding tour de force of camera magic which traces the epic story of man's efforts to record images of the visual world around him, culminating in the "mirror with a memory," the camera's eye. Film critic Bosley Crowther describes the visual concept of this film as "photographic poetry" and it is most certainly a triumph of imaginative cinematographic technique.

"Obmaru" was produced by Patricia Marx and presented at the 1959 International Design Conference in Aspen. It is a weird, semi-surrealistic, non-objective film which, by means of strikingly original camera treatment, captures the provocative moods of stylized Voodoo music.

The films of Maya Deren, a pioneer experimentalist who is still regarded in some circles as the "High Priestess" of the movement, are outstanding both in concept and execution. Her "Meshes in the Afternoon," "At Land" and "Chor-

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eography for Camera" are especially well done.

Norman McLaren, the Canadian experimentalist, has achieved some unusual effects by combining off-beat photography with abstract designs painted or scratched directly onto the film. His "Begone Dull Care," underscored with progressive jazz rhythms by the Oscar Peterson Trio, and "Neighbors" are two films which have won consistent accolades in art circles.

Valentine Sherry's "Coney Island, U.S.A." is a delightfully subjective satire of Americana that has won awards at Venice and Edinburgh. "Bells of Atlantis," by Ian Hugo, is a skillfully executed bit of underwater impressionism interpreting a poem recited on the sound track.

There are, of course, many more excellent experimental films made by serious craftsmen who have taken the time and trouble to learn thoroughly the mechanics of cinematography. These film makers, in what is clearly a labor of love, often create camera effects and montages of great impact, beauty and originality, and it is an education to study their work.

But, as they say in the hobby shops, there is nothing like getting in and doing it yourself. A large majority of experimental films are shot in 16mm; the equipment used need not be elaborate. Nor is 16mm (as compared with 35mm) very expensive. When interiors must be lighted, simple mushroom-type reflector spots and floods operated directly off house current will usually prove most satisfactory.

If the experimentalist wishes merely to try out certain random camera effects, fine — but the experience will prove much more valuable to him if he can integrate these effects into an actual film story or continuity, since the motion picture form consists not of a series of disconnected scenes, but of related images placed in juxtaposition to create an overall continuity.

As far as subject matter is concerned, the choice is unlimited. Psychological themes, of course, offer lush opportunities for subjective camera effects, double exposures, distorted perspectives, impressionistic montages, etc. But almost any slice of life — tragic, humorous or socially significant, can be approached from the experimental point of view. While the object is not to create off-beat photography purely for the sake of novelty, the experimentalist should let himself go completely, working on the theory that effects that prove to be "too far out" can always be toned down in later attempts. The important thing is to be free and uninhibited with the camera so that the results, although not always perfect, reveal freshness and originality.

The value of these free-wheeling experiments cannot be measured in practical terms, since they are, in effect, exercises to stretch the muscles, figuratively speaking, of the cinematographer. But it is surprising to find how many of the effects thus arrived at can, in modified form, be applied to certain commercial films and theatrical features.

In 1932, for example, French author-playwright Jean Cocteau turned his hand to celluloid to produce an all-out *avant-garde* effort titled: "Blood of the Poet." This film was incomprehensible enough to become and remain a darling of the dilettantes, who had a field day dredging up out of its frantic symbolism all sort of deep inner meanings—while Monsieur Cocteau, no doubt, looked on with his tongue in his Gallic cheek. The film did, however, utilize many intricate camera effects and striking trick shots, not the least spectacular of which was a sequence in which the hero crashes through a mirror into a surrealistic world.

This frankly experimental film was Cocteau's first foray into cinema and he gleefully pulled out all the stops. Some of the camera effects went boldly overboard, but Cocteau learned much from the experience, and he was able to precisely tailor many of these effects, somewhat toned down, to such later film masterpieces as "The Eternal Return," "The Eagle Has Two Heads," "Les Enfants Terribles" and "Orpheus." His refined and tasteful camera trickery reached lyrical heights in the magnificent film fantasy, "Beauty And The Beast."

Fifteen years ago Robert Montgomery persuaded M-G-M executives to let him direct and star in an entirely subjective screenplay, "Lady in The Lake." Throughout the film the camera functions as the eye of the protagonist (who is only seen when he steps in front of mirrors), so that the entire action (photographed by Paul Vogel, ASC) was presented on the screen as it appeared from his point of view. While the M-G-M moguls would have perished before admitting that this was an experimental film—it, nevertheless, certainly was. While 90 minutes of this camera technique might perhaps have been a bit too much of a good thing, the film proved the stunning effectiveness of the subjective camera, and many Hollywood feature films have made telling use of subjective scenes in sequences since then where it is necessary to draw the audience strongly into the action.

Similarly, the experimental cinematographer will find that many of the extreme camera effects which he tries out can be applied in modified form to lend photographic excitement to commercial and theatrical films which he may later photograph. Business films, in particular, competing for the attention of viewers jaded by TV and wide-screen theatrical spectacles, can profit from the use of arresting camera effects thus developed.

So it becomes evident that the experimental film, both in the viewing and the making, is an invaluable laboratory for the cinematographer who wishes to develop style and originality in the use of the motion picture camera. As a catlyst to creative accomplishment it represents an area of research which should not be bypassed. ■

"What do you mean you forgot to bring the film??"

BOOM-SHOT TECHNIQUE

Continued From Page 31

follow shot, with the camera trained on a character entering the general locale. Then the camera rose high into the air, revealing what seemed like an endless expanse of railroad tracks lined with the bodies of wounded and dying Confederate soldiers. The impact of this striking presentation of the scene made it the outstanding visual moment in a picture filled with outstanding moments.

In films such as these, boom shots

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should be adapted to patterns of action, not vice versa. Here the happiest result stems from pre-shooting conferences between cinematographer and director in which it is decided how action patterns must be staged to put across the dramatic values of the script—and, secondly, how the camera can become an *active* force in making these patterns count for fullest visual effect.

(3) *To establish a spacial relationship between separate elements of the scene.*—Sometimes, when the structure of a large set is intricate, it becomes a genuine problem to keep the screen geography straight in the minds of the audience. Unless the spacial relationship of the various physical areas is first made clear by some comprehensive establishing shot, direct cuts from one segment of the locale to another may leave the audience confused as to where a particular bit of action is occuring.

The best way to dispel such doubt is by means of a well-planned boom shot. Skillfully executed, such a shot can effectively set the atmosphere for the entire sequence.

Ideally, a shot of this kind should begin at maximum height and range through the widest practical angle in order to establish as much of the set

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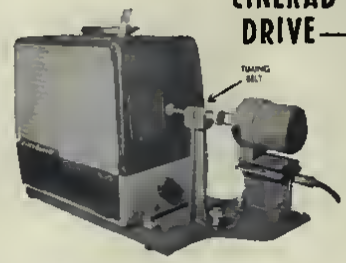

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as possible. With the boom descending to eye level, the camera then picks out a leading character and follows him from one part of the set to another. Or perhaps it will follow several subordinate characters, picking up one and following him for a distance, then leaving him to concentrate on another. In this way, set geography is established, an atmosphere or mood is created, and characters are effectively introduced.

(4) *To focus attention sharply on one part of a wide composition.*—The camera is a selective mechanism. With it we can pick and choose what we wish most to show, and ignore what need not be shown. Moreover, this selectivity can be given a lot of emphasis by the choice of angle used to show any one element in the scene—it being generally recognized that the *closeup* is the most emphatic shot.

Very often it is dramatically important to establish a general situation, then narrow down to a single small element of that situation. Alfred Hitchcock used this idea effectively some years ago for a scene for "Notorious." In the earlier scenes of this picture the key to a wine cellar had been established as a prop more than ordinarily vital to the plot. The boom shot Hitchcock and his cameraman contrived for focusing attention on the key began with a very high long shot (from elevated camera boom) of a ballroom where a lavish party was in progress. The camera is focused on the whirling figures of the dancers below. Suddenly it booms rapidly down to an extreme closeup of the key held in the hand of the main character in the story. This rapid change of camera angle from establishing long shot to a screen-filling closeup of a key scarcely two inches in length was most effective. The scene could not have been accomplished except by means of the camera boom plus the assistance of a competent cinematographer and a corp of skillful boom operators trained in the work.

(5) *To contribute movement to a basically static situation.*—It is in this application that the boom shot either can do wonders or go completely awry. Actually, the odds are against its success; for valid cinematic movement on the screen should result from a combination of expert script writing, direction, and acting rather than from the physical mechanics of cinematography.

But the boom shot has been effectively used in photographing some of Shakespeare's plays—such as "Hamlet" and "Henry V," directed by Laurence Olivier several years ago. While "Hamlet" displayed some boom shots badly used, there also were sequences in which the moving, boom-mounted camera was coupled with broadly sweeping patterns of action, giving unusual force and dash to Shakespeare's literary prose.

Less successful, however, were the shots in which the camera wound its solitary way up the staircases and ramparts of the gloomy castle, never encountering a single human being. A minimum of this might have gone far to create a mood of impending disaster: but so much of the camera meandering was used that the technique called attention to itself. And this is something that no camera maneuver should do.

"In "Henry V" the boom shot technique was used more effectively and logically, especially in filming the Battle of Agincourt where the lofty camera on its readily manueverable boom captured the full sweep of the encounter.

(6) *To tie together several segments of a large composition to form a single unified scene.*—Used in this manner, the boom shot is most effective in concentrating audience attention on a dramatic situation, taking it right along with the characters. The camera moves in and out, up and down as the shifting pattern of *continuous* action dictates. This technique achieved the height of perfection during the era of spectacular musical films, which Hollywood produced during the early 30's.

At this time, almost every major studio designed and built its own camera boom. An outstanding development was the crane built by MGM, which was self-propelled and entirely motorized enabling the camera operator to have full control of all panning and elevating moves.

Today's production of super-spectacles, such as "Spartacus," "The Alamo," "Cimmaron," "Ben-Hur," etc., which were photographed with the heavier ultra-widescreen cameras, such as Technirama and Todd-AO, demanded even larger and more rugged camera booms. These were rented, in most cases, from Chapman Studio Equipment, whose Chapman Booms are now well-known throughout the industry.

The Chapman 4-wheel medium location and stage crane weighs 10,000 pounds, is 7 feet wide and 14 feet long. Maximum height attained by the boom is 16 feet, and its vertical boom travel range is 13 feet. The crane has a lifting capacity of 2,000 pounds. The mobile chassis requires two operators: the truck operator, and the grip who has control of the front and end of the crane, brakes, electric power control and crane steering mechanism. The Chapman 6-wheel location and stage crane is larger and heavier, is self-powered for traveling on highways to and from location, and can attain a speed of 55 miles per hour. (Complete descriptive data sheets on all Chapman camera cranes and booms, as well as smaller booms produced by others, are to be found in the new American Cinematographer Manual.)

The boom shot is now a well-established cinematic technique, and is used wherever theatrical pictures are produced. Like many another cinematographic innovation, its value depends largely upon the planning and execution of its use. ■

Crew reaction while shooting a "horror" picture scene. (From Der Film Kreis," Germany)

DAY-FOR-NIGHT SHOTS

Continued From Page 36

the result that faces of actors in scenes photographed with them will be rendered almost chalk white on the highlight side and inky black on the shadow side. Such harsh contrast is not natural in an actual night scene. It can be avoided by combining, say, the 23A red filter with a Wratten 56 (light green) filter. Result is that all the good qualities inherent in the red filter will be retained, and its objectionable tendencies will be cancelled out or neutralized by the addition of the green filter. The latter will prevent "chalking up" of highlights and will allow some

of the shadows to register on the negative. (The filter factor is 6, and is computed without considering any additional reduction in exposure).

Day-for-night shots can be made to appear more realistic by introducing one or more natural light sources into the scene, such as lighted windows, a street lamp, automobile headlights, etc. The light source used for such effects must be of high intensity — stronger than the prevailing daylight—in order to penetrate through the filters used on the camera lens. Thus the use of photofloods in street lamps, or a bank of photofloods or reflector-floods behind windows covered with tracing paper will produce the desired effect.

An example is the scene illustrated in accompanying photo. The dotted lines indicate the area taken in by the wide-screen camera. It is a cloudy-bright day, producing a minimum of shadow—ideal for day-for-night shots —and high-powered bulbs have been placed in the locomotive headlights to provide the extra brilliance required. High intensity lights have also been placed in back of the station windows and there is also a bright light in a small fixture toward the rear. Extra bright to the eye, these lights and illuminated areas came through quite naturally in the print of the day-for-night shot. The sky area was reduced to a minimum by setting the camera moderately high and tilting down, eliminating the need to use an N.D. filter here.

Some Hollywood cinematographers prefer to shoot day-for-night scenes at dusk, during a period they have come to term "the magic hour"—that time when there is enough overall light for acceptable exposure, yet not enough to minimize the effect of lighted windows, street lamps, etc. Because the prevailing light at this time of day is so weak, no correction filters are required, although the neutral wedge filter may be required if there is substantial sky area in the scene. It is sometimes necessary to sidelight actors in the foreground in such scenes because of the light which prevails at dusk. Here portable lighting equipment, such as ColorTrans or Garnelites may be used.

A popular procedure for filtering and exposing for day-for-night effects is pretty concisely stated in the new *American Cinematographer Manual*, in the chapter "Day-For-Night Cinematography":

"A survey of top cinematographers shows that most of them underexpose

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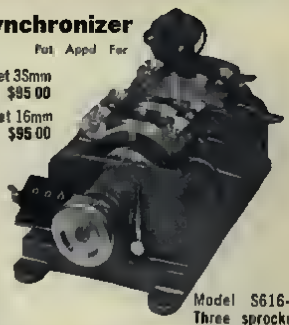

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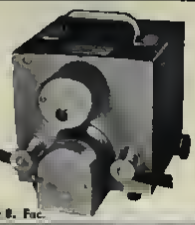

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1½ to 2 stops, rarely more Brilliant sunlight will require greater underexposure, gray days less The underexposure can be handled in several ways: by ignoring the filter exposure required—if it is close to the amount of underexposure. For instance, the filter being employed may require an increase of two stops in exposure for a normal effect The increase is ignored and the diaphragm set for the exposure *without* the filter. thus delivering the necessary underexposure for the night effect Or, a neutral density filter of the desired strength is employed and its exposure increase ignored The procedure is as follows: insert the effect filter or combination of filters for the desired effect and allow for their exposure increase as in normal photography. Add the desired N.D. filter (a .30 for 1 stop, .50 for 1½ stops, or a .50 for 2 stops), Ignoring the filter's exposure increase factor will automatically underexpose the negative the amount required for the night effect.

"This is a quick and effective method for fast production shooting where night effects are suddenly required and where there is little or no time available for computations. A cameraman employing a 21 or 23A filter for normal outdoor filming simply has to add the required N.D. filter, make *no* exposure change, shoot the day for-night scene, pull the N.D. filter, then continue filming normal day scenes with the original filter."

Day-For-Night Shots In Color

Because it is commonly assumed that normal night scenes are bluish in tone, making day-for-night shots in color offers the advantage that such shots can easily be made "plus blue" to enhance the illusion. The simplest method is to use indoor-type color film for shooting the "night" scenes out of doors—*and without the correction filter*. Omitting the filter produces an over-all blue effect in the scene, and this—plus underexposure—renders a pleasing night effect.

As when shooting day-for-night scenes with black-and-white film, backlight can often prove advantageous when an N.D. filter is used to control the sky area in the scene. But here, as in black-and-white day-for-night photography, sky areas are best avoided for most satisfactory results. Some cinematographers prefer to make day-for-night shots in color in twilight or when an overcast prevails. Here, photography generally starts as soon as possible after sunset, with an A2 ultra-violet filter on the lens. As the prevailing light decreases, the filter is removed and only artificial light is used in the scene.

Where daylight-type color film is used for night effect scenes, the light blue filter recommended for converting indoor color film for daylight use is employed, but without making any allowance for filter factor, to gain the required underexposure

As incandescent light photographs white with indoor-type color film, use of MT2 gelatin filters over set lamps will render a soft orange color generally associated with lamp light This same filter can also be used to filter the side lights and any back lights used on the actors. Unfiltered incandescent light should be used for fill light on actors' faces. This will create a suitable color harmony that further enhances the illusion of night in the scene.

Many cinematographers and film laboratories differ in their approach to producing effective day-for-night scenes, the *American Cinematographer Manual* points out. Many cinematographers and some labs recommend that the 85 filter be removed and exposure lowered to allow the tungsten-balanced emulsion to be exposed outdoors with resulting uncorrected bluish cast Still other labs prefer the 85 filter be employed in photography, as in normal outdoor filming, and the laboratory then be allowed to add the required amount of blue color at the time of processing or printing the film. It is recommended that the cinematographer about to undertake shooting day-for-night scenes on negative color stock check first with the laboratory that will process his film. Their recommendations will be extremely helpful. Color labs are able to produce a wide range of color correction—more than is possible with the camera, filters and lights.

At best, day-for-night scenes are only an illusion, for in actual night detail is far less discernible than commonly seen in motion pictures, where some detail is necessary in order to maintain continuity of action or theme. ■

Many film makers today are shooting 16mm picture and using 35mm film for sound and work prints—a procedure that makes edge-numbering imperative in order to accurately match the 16mm footage with the 35mm in editing

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ASC'S 42ND YEAR

Continued from Page 10

Philip Rosen, who had served three terms as president, sparked a reorganization of the club. On December 21, 1918, a number of the members headed by Rosen met at the home of William Foster and there voted a new board of governors and a new name for the organization—the American Society of Cinematographers Incorporation papers were filed, which were approved on January 8th, 1919, and thus the A.S.C came into being. Following the Society's initial election of officers, Philip Rosen was chosen president, Charles Rosher, vice-president; Homer Scott, 2nd vice-president; Wm Foster, treasurer, and Victor Milner, secretary. Five months later, the Society occupied its first spacious quarters in the Markham Building on Hollywood Blvd. Several years later the offices were moved to more spacious quarters in the Guaranty Building in Hollywood. It was here, in November, 1920, that publication of the Society's monthly magazine, *American Cinematographer*, began.

As one of the Society's chief purposes was to generate social activity among its members, one of its pressing needs was a suitable place in which to hold these activities. By now, the Society's treasury was substantial, and the Board of Governors decided to acquire permanent quarters for a clubhouse.

A large dwelling situated on the corner of Franklin Avenue and Orange Drive in the residential district just North of Hollywood Boulevard was purchased and renovated to provide all the necessities for the club—a Board room, lounge, library, billiard room, bar, and spacious kitchen for the preparation of food for the Society's monthly dinner-meetings. On meeting nights, furniture in the lounge was replaced with banquet tables and chairs. The property had once belonged to silent-film star, Conway Tearle. The Society took possession of its new quarters in December, 1936, and held its informal dedication on February 28, 1937, with cocktails and a buffet supper.

The American Society of Cinematographers is a non-profit organization. Membership is by invitation only and only recognized Directors of Photography and Special Effects Cinematographers may qualify as active members. Associate members are those closely affiliated with some phase of motion picture photography other than actual camera work.

At present the Society numbers about two hundred and fifty directors of photography and sixty-five associate members. ■

WHAT'S NEW

Continued from Page 22

New Auricon Sound System

Bach-Auricon, Inc., 6950 Romaine, Hollywood 38, Calif., announces a new, lightweight all-transistorized Filmagnetic recording system for use in Auricon Cameras. Recording and monitor heads of new system can be factory-installed on all existing Auricon cameras without impairing the optical sound recording capability of the cameras. With the new unit, lip-sync sound may be magnetically recorded on pre-striped 16mm black-and-white or color film.

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New Arriflex Motor

Arriflex Corp. of America announces a new 24-28-volt DC variable speed motor capable of driving the Arriflex 35mm at 12 to 36 fps. ■

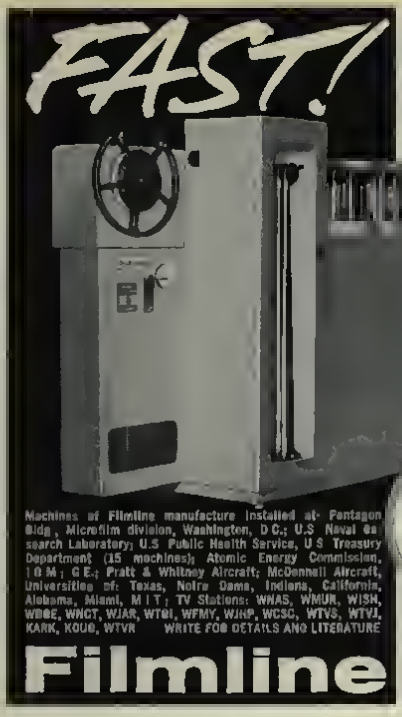
PHOTOGRAPHIC ASSIGNMENTS

Continued from Page 18

HARRY STRADLING, ASC, "On the Double" (PanaVision & Technicolor; Shevelson-Rose Prods.) with Danny Kaye and Dana Wynter Melville Shavelson, director

ROBERT BURKS, ASC, "The Pleasure of his Company" (Technicolor) with Fred Astaire and Debbie Reynolds George Seaton, director

WALLACE KELLEY, ASC, "The Ladies Man" (Technicolor; Jerry Lewis Prods.) with Jerry Lewis and Helen Traubel Jerry Lewis, director



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WILLIAM MARGUILES, ASC, "The Outlaws"* LOYAL GRIGGS, ASC, "Love in a Goldfish Bowl" (Technicolor) with Tommy Sands and Jan Sterling. Jack Sher, director

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REPUBLIC STUDIOS

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EMMET BERGHOLZ, "Death Valley Days"* (Filmaster Prods.).

HARRY WILD, ASC, "Peter Loves Mary"* (Four Star Prods.) with Peter Lind Hayes and Mary Healy. "The Tom Ewell Show"* (Four Star Prods.) with Tom Ewell and Marilyn Erskine.

FRANK CARSON, "Dick Powell's Zane Grey Theatre"* (Four Star Prods.) with Dick Powell.

HOWARD SCHWARTZ, "The Rifleman"* (Four Star Prods.) with Chuck Connors.

GILBERT WARRENTON, ASC, "Michael Shayne"* (Four Star Prods.) with Richard Denning.

CHARLES BURKE, "Dante"* (Four Star Prods.) with Howard Duff and Alan Mowbray

GEORGE DISKANT, ASC, "June Allyson Show"* (Four Star Prods.) with June Allyson.

JOSEPH MACDONALD, ASC, "The Last Time I Saw Archie" (Mark VII Prod. for UA) with Robert Mitchum and Jack Webb. Jack Webb, director.

REVUE STUDIOS

WILLIAM DANIELS, ASC, "Come September" (PanaVision & Color, Seven Picts., UI Prod.; shooting in Italy) with Rock Hudson and Gina Lollobrigida. Robert Mulligan, director.

STANLEY CORTEZ, ASC, "Back Street" (Color, Ross Hunter-Carrollton Prod.) with Susan Hayward and John Gavin. David Miller, director

MACK STENGLER, ASC, "Leave It to Beaver"■ (Gomalco Prods.) with Barbara Billingsley and Hugh Beaumont. Norman Tokar, director.

ROBERT GOUGH, "The Deputy"* (Revue Prod.) with Henry Fonda.

WALTER STRENGE, ASC, "Wagon Train"* (Revue Prods.) with Robert Horton.

RAY RENNAHAN, ASC, "Laramie"* (Revue Prods.).

RAY CORY, ASC, Bringing Up Buddy"* (Kyro Prods.) with Emil Markey and Dora Morande

JOHN RUSSELL, ASC, NEAL BECKNER, "Alfred Hitchcock Presents"* (Revue Prods.)

ELLIS THACKERY, ASC, "Bachelor Father"* (Bachelor Prod.) with John Forsythe, "Westinghouse Playhouse"* (Revue Prods.).

JOHN RUSSELL, ASC, LIONEL LINDON, ASC, "Thriller"■ (Revue Prods.)

JOHN WARREN, ASC, LIONEL LINDON, ASC, "Checkmate"■ (J&M Prods.) with Anthony George

NEAL BECKER, ROBERT GOUGH, "Wells Fargo"* (Overland Prods.) with Dale Robertson.

Continued On Page 60

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PHOTOGRAPHIC ASSIGNMENTS

Continued from Page 59

BENJ KLINE, ASC, "General Electric Theatre"* (Revue Prods).

JOHN RUSSELL, ASC, "Tall Man"* (Revue Prods) with Barry Sullivan.

BENJ KLINE, ASC, JOHN RUSSELL, ASC, "Shotgun Slade"* (Revue Prods.)

CLIFF STINE, ASC, "Posse from Hell" (Color) with Audie Murphy and John Saxon. Herbert Coleman, director.

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PHILIP LATHROP, ASC, "Hong Kong"* with Rad Taylor and Lloyd Boehner.

LLOYD AHERN, ASC, "Adventures in Paradise"* with Gardner McKay and Weaver Levy

PIETRO PORTALUPI, ASC, "Francis of Assisi" (C'Scope & Color, Triton Pict. Corp.—shooting in Europe) with Brad Dillman and Stuart Whitman.

WILLIAM MELLOR, ASC, "Wild in the Country" (C'Scope & Color, Co. of Artists Prod.) with Elvis Presley and Hope Lange. Philip Dunne, director

LEO TOVER, ASC, "All Hands on Deck" (C'Scope) with Pat Boone and Barbara Eden. Norman Taurog, director.

OTTO HELLER, "The Big Show" (C'Scope & Color; API, shooting in Germany) with Esther Williams and Cliff Robertson. James B. Clark, director

CHARLES CLARKE ASC., "Return to Peyton Place" (Company of Artists; C'Scope & DeLuxe Color) with Joan Crawford and Carol Lynley. Jose Ferrer, director

LEON SHAMROY, ASC, "Snow White and the Three Stooges" (C'Scope & Color) with Carolyn Heiss and the Three Stooges. Walter Lang, director.

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BURT GLENNON, "Lawman" with John Russell

RALPH WOOLSEY, ASC, ROBERT HOFFMAN, "Roaring Twenties"* with Rex Reason.

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FRED GATELY, ASC, JACK MARQUETTE, "Room for One More."*

HAROLD STINE, ASC, EDWIN DUPAR, ASC, GLEN MACWILLIAMS, ASC, "Hawaiian Eye"* with Anthony Eisley

HAROLD STINE, ASC, "Cheyenne"* with Clint Walker

ELLIS CARTER ASC, PEVERELL MARLEY, ASC, "Surfside 6"* with Troy Donahue and Diane McBain.

RAY FERNSTROM, ASC, HAROLD STINE, ASC, "Roaring Twenties"* with Rex Reason.

WILLARD VANDERVEER, ELLIS CARTER, ASC, "Maverick"* with James Garner

LUCIEN BALLARD, ASC, "Susan Slade" (Shooting in Monterey) with Troy Donahue and Connie Stevens. Delmer Daves, director

HARRY WAXMAN, "The Roman Spring of Mrs. Stone" (Color; AA Prod., shooting in London) with Vivian Leigh and Warren Beatty. Joe Quintero, director

EUGENE POLITO, "Portrait of a Mobster" with Vic Morrow and Leslie Parrish. Joseph Pevney, director

RALPH WOOLSEY, ASC, "Claudelle Inglish" with Diane McBain and Arthur Kennedy. Gordon Douglas, director

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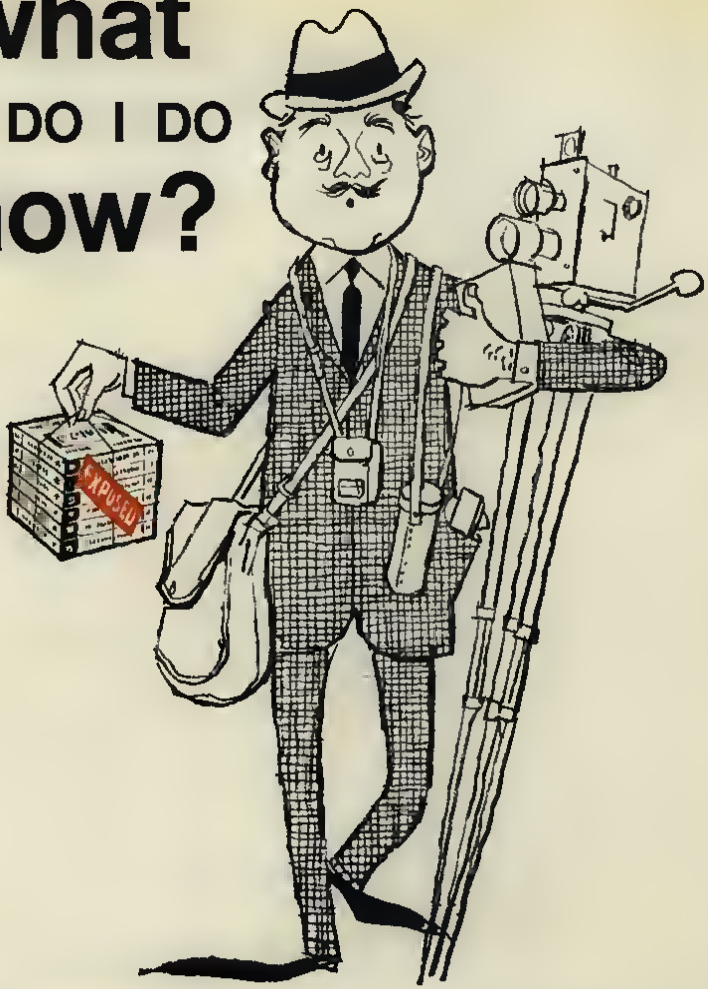

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